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KEY

Name_____

Senior Livestock Breeds Identification – 2021

INSTRUCTIONS: For each picture, use the columns on the right to choose the letter that indicates your answer for each livestock breed and for the important characteristics/traits. **You must bubble in the scantron sheet corresponding with Breed Name and Important Traits**. You may fill this sheet out and keep to go over with your coaches at the end of the contest. Each question is worth 3 points for each part of the question. (60 points total for Seniors).

	Breed Name	Important Traits
1.	N	J
2.	L	G
3.	I	I
4.	H	E
5.	O	L
6.	S	K
7.	Q	M
8.	C	B
9.	E	A
10.	B	D

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

Beef Breeds	Goat Breeds	Sheep Breeds	Swine Breeds
A. Angus	G. Alpine	I. Polypay	O. Berkshire
B. Red Angus	H. Lamancha	J. Romney	P. Poland China
C. Simmental		K. Lincoln	Q. Yorkshire
D. Red Poll		L. Southdown	R. Hereford
E. Brahman		M. White Face Cross	S. Tamworth
F. Maine – Anjou		N. Texel	T. Duroc

Important Characteristics/Traits Origins of Breeds – to be used in answer column 2 by Seniors

Beef Cattle Characteristics/Traits

A. Heat tolerance, insect and parasite resistance, hardiness, and maternal instincts; Origin – Developed in the U.S. from Bos Indicus cattle from India.
B. Heavily muscled, high carcass yield, growth rate, feed efficiency, and milk production; Origin – Simme Valley of Switzerland.
C. Growth rate, muscling, early puberty, calving ease, and mothering ability; Origin – Germany.
D. Excellent meat quality (nicely marbled), calving ease and hardy; Origin – British Isles.

Goats Characteristics/Traits

E. Known for milk yield, high butterfat, sturdy, hardy and excellent temperament; Origin - Oregon.

F. Hardy, adaptable animals that thrive in any climate while maintaining good health and excellent production; Origin – Alps of Switzerland.

Sheep Characteristics/Traits

G. Carcass conformation, early maturity, and adaptability to varied climates; Origin – Sussex, England.
H. Wool production, muscling, and late fattening; Origin – Kent, England.
I. High lifetime prolificacy, large lamb crop, ability to lamb more frequently; Origin – U.S. Sheep Experiment Station Dubois, ID.
J. Lean, muscular carcasses, a dominate terminal sire; Origin – Netherlands.

Swine Characteristics/Traits

K. Aggressive breeders and mothering ability; Origin – England.
L. Conception rate and meat quality (intramuscular fat); Origin – England.
M. Prolificacy (litter size), milking ability, mothering ability; Origin – England.
N. Excellent rate of gain and feed efficiency; Origin – U.S. (New Jersey/New York).

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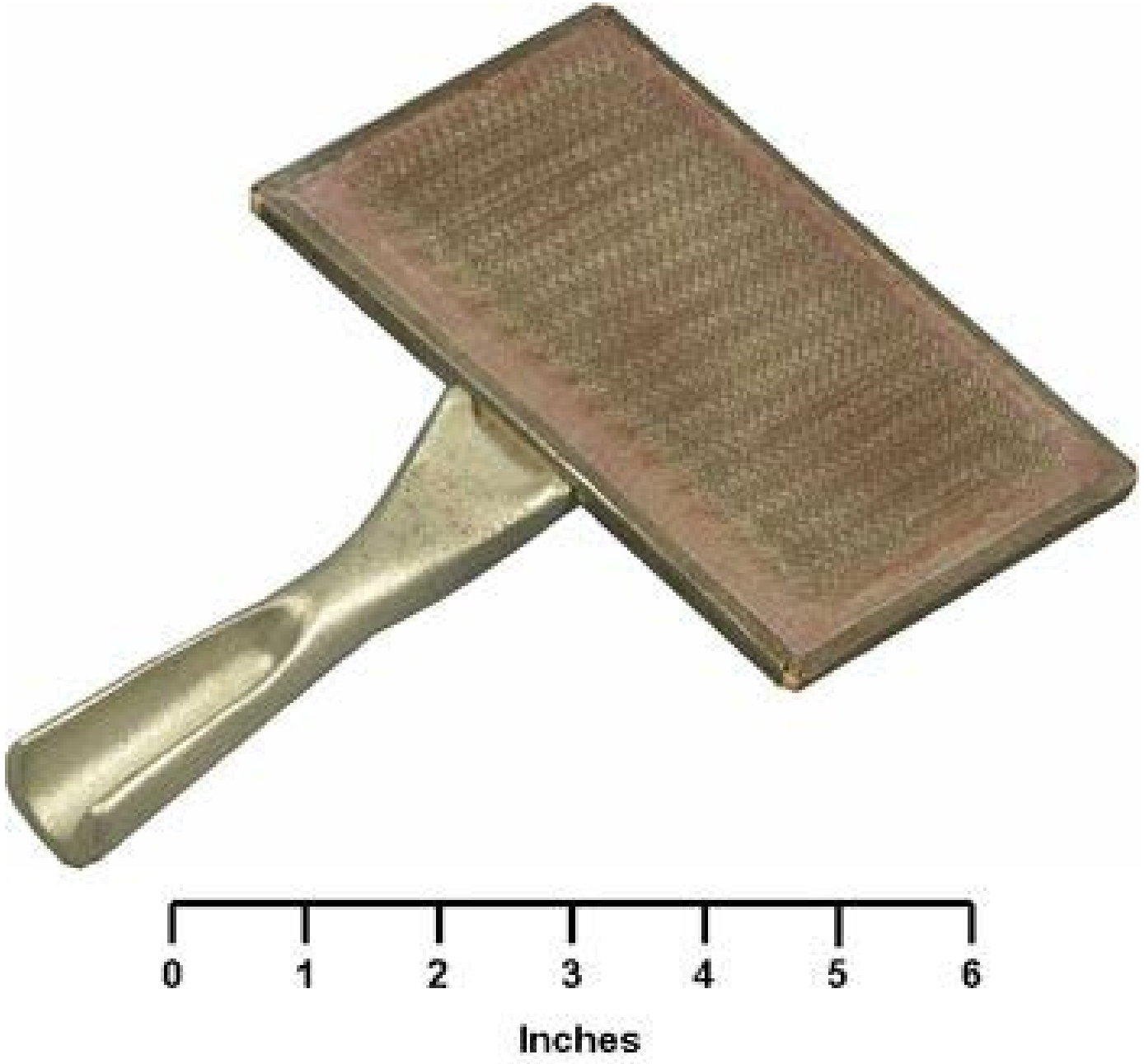

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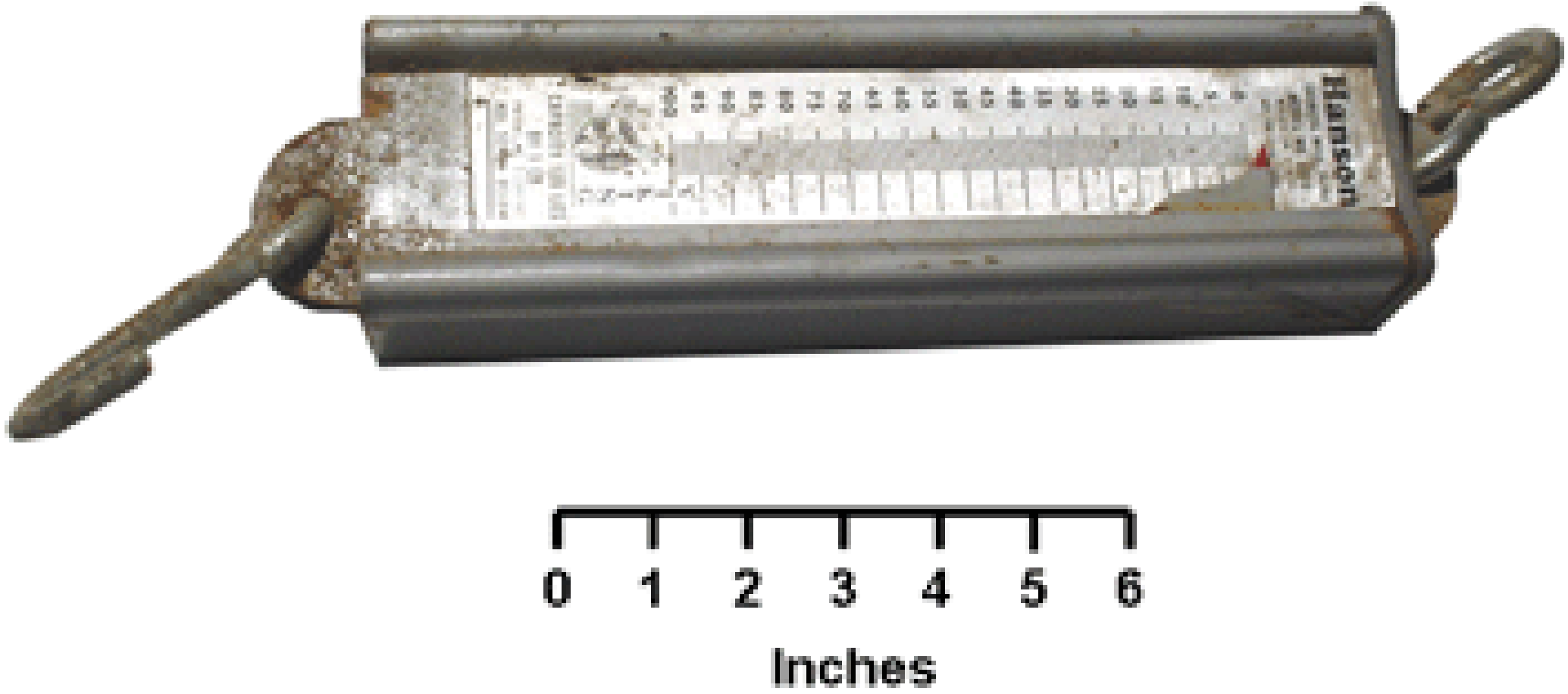

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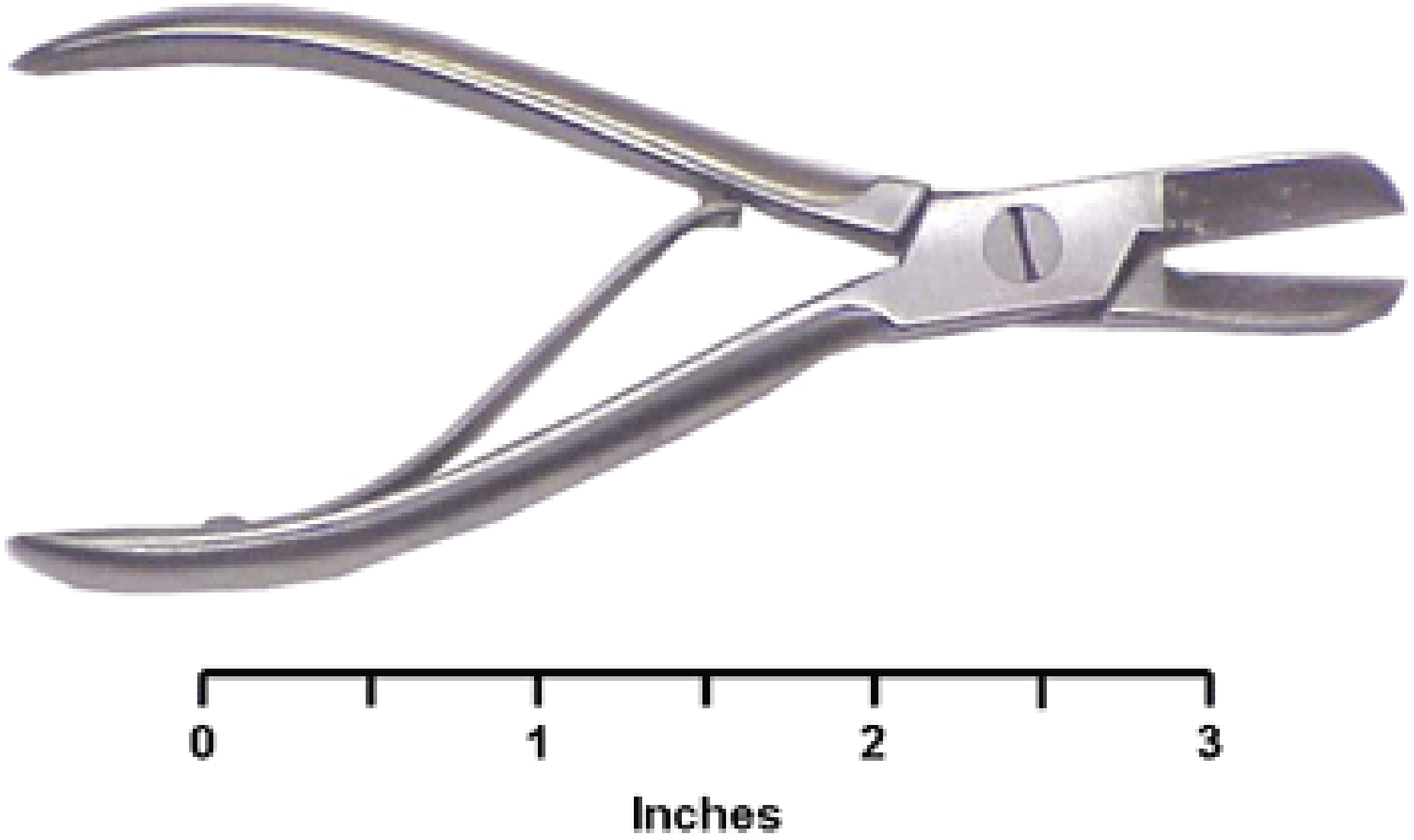

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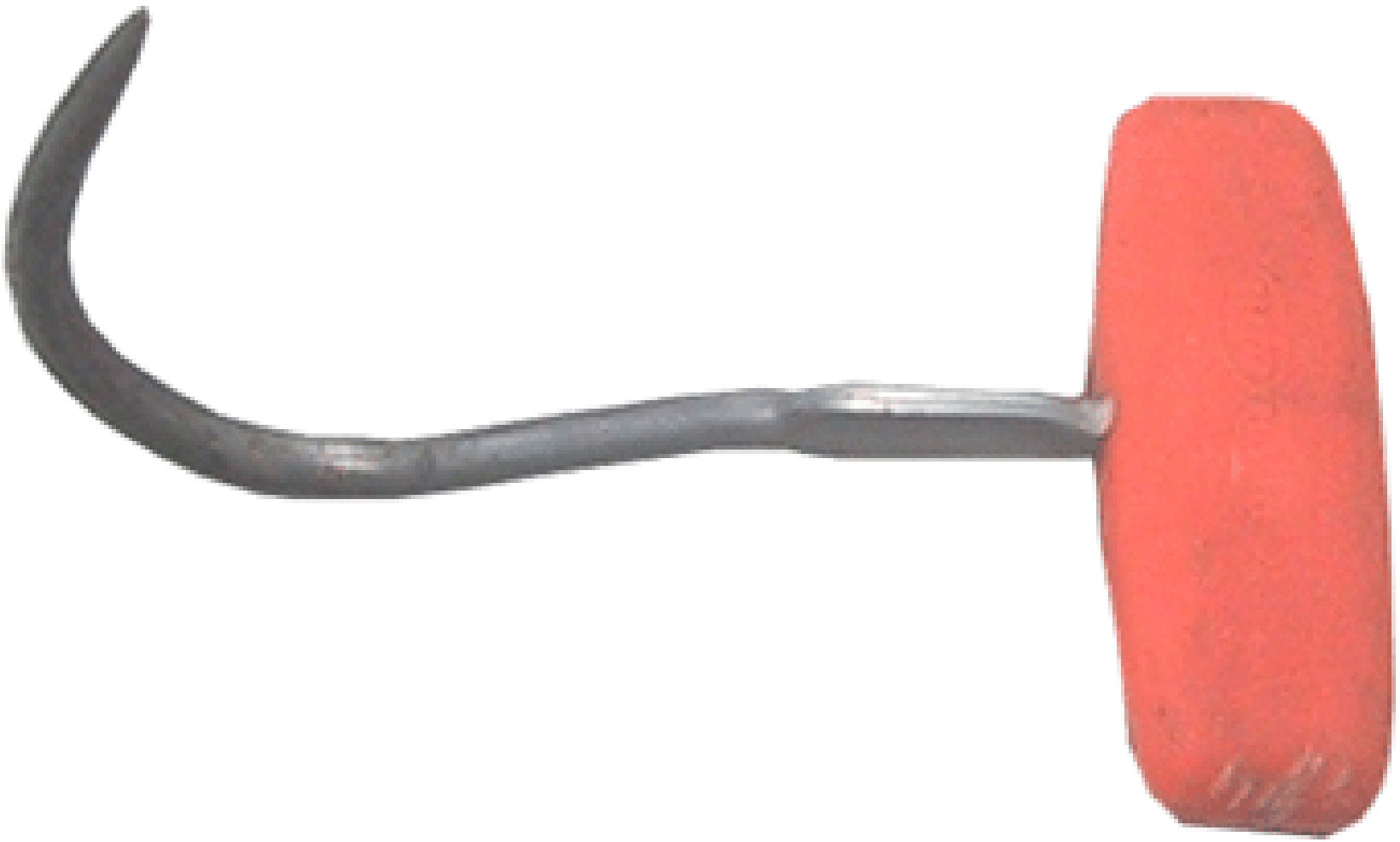

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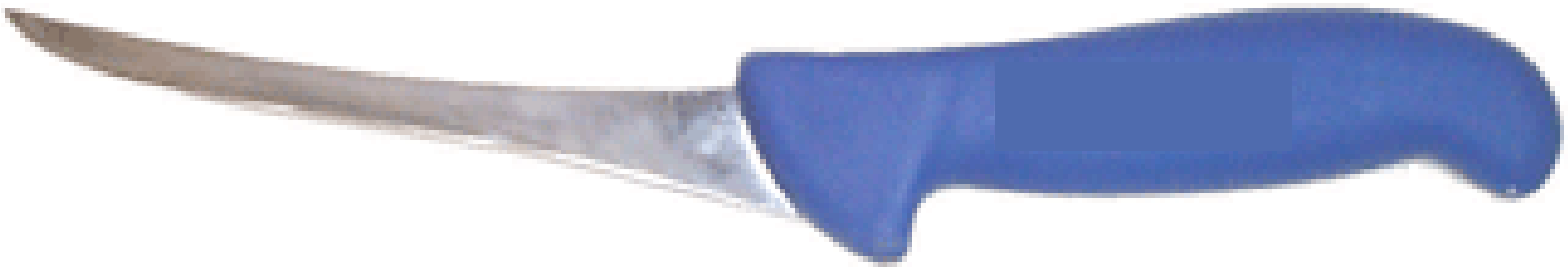

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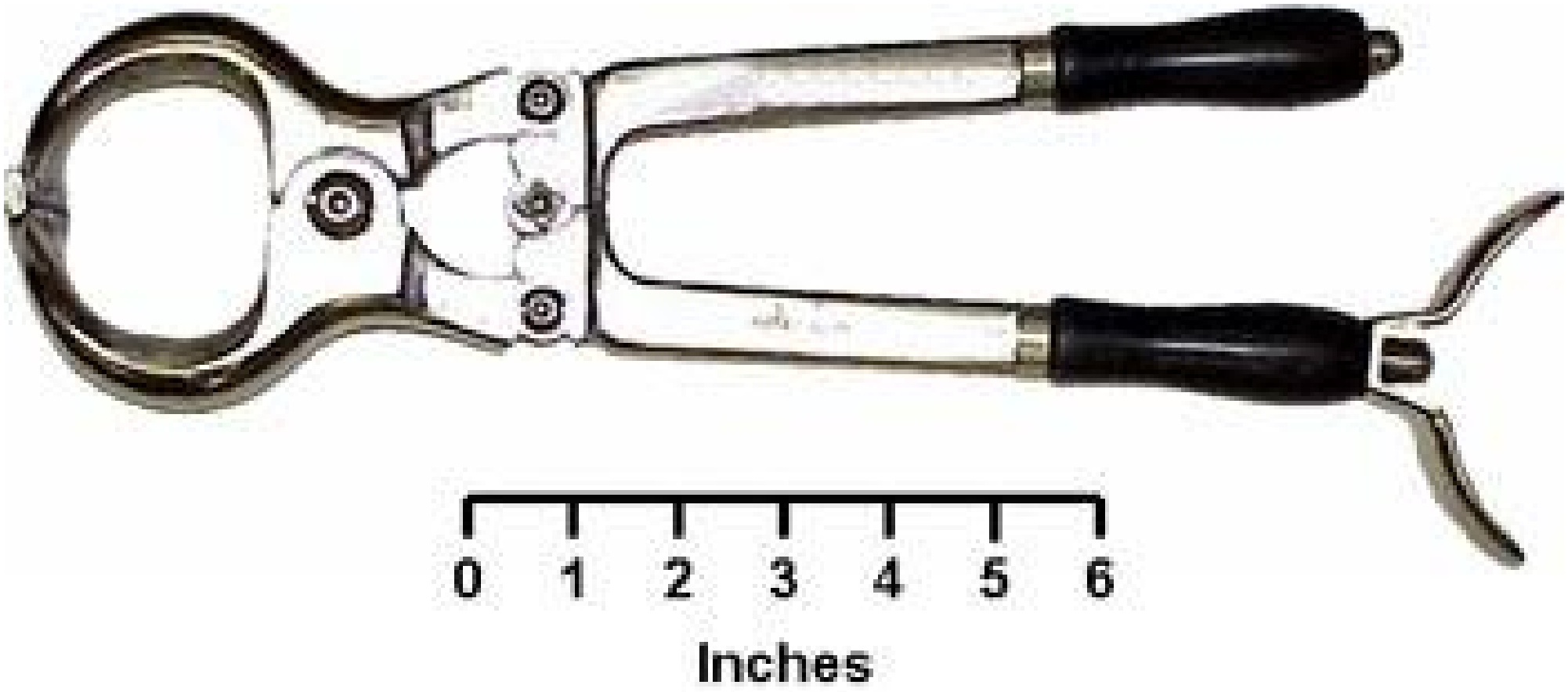

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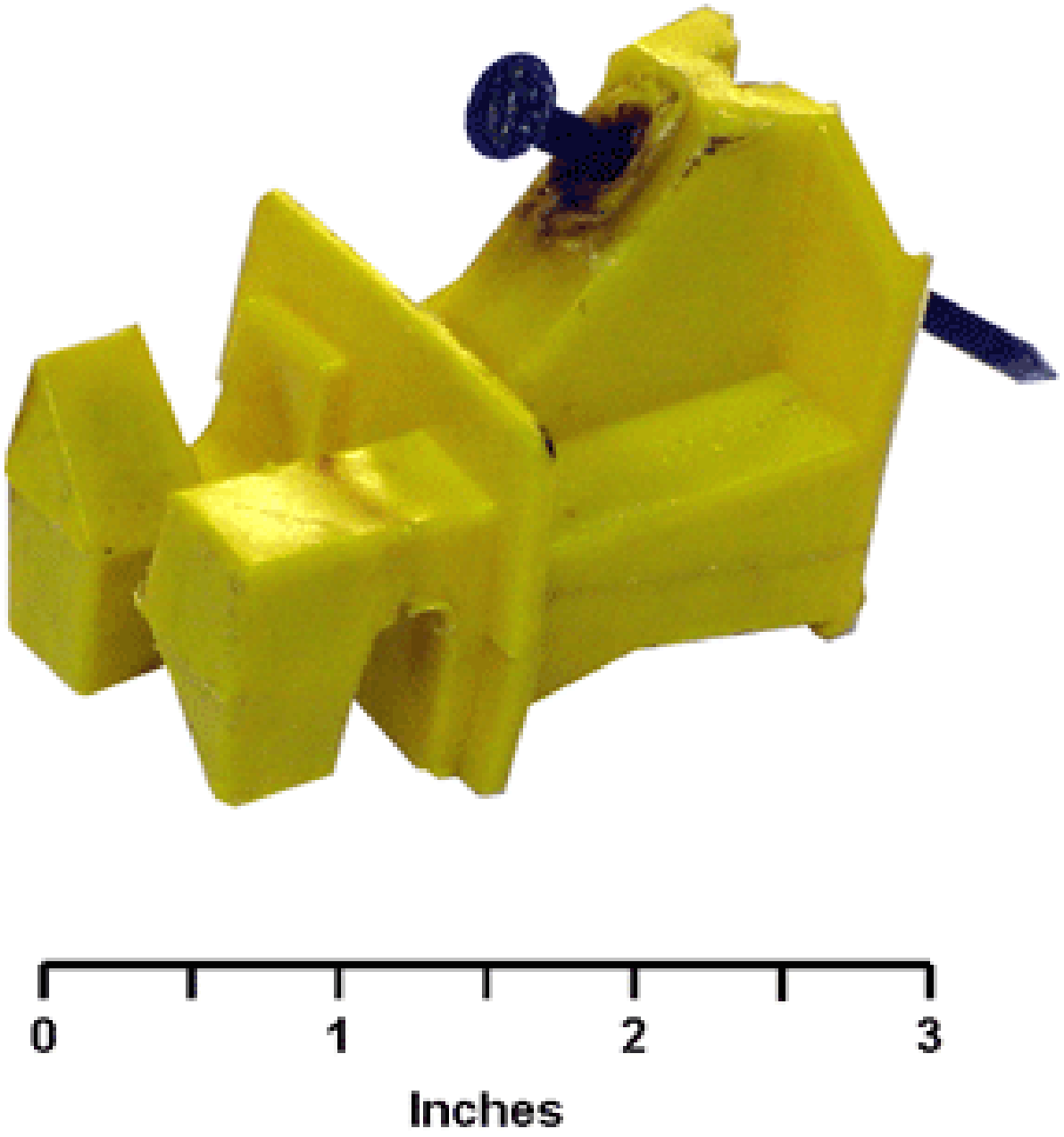

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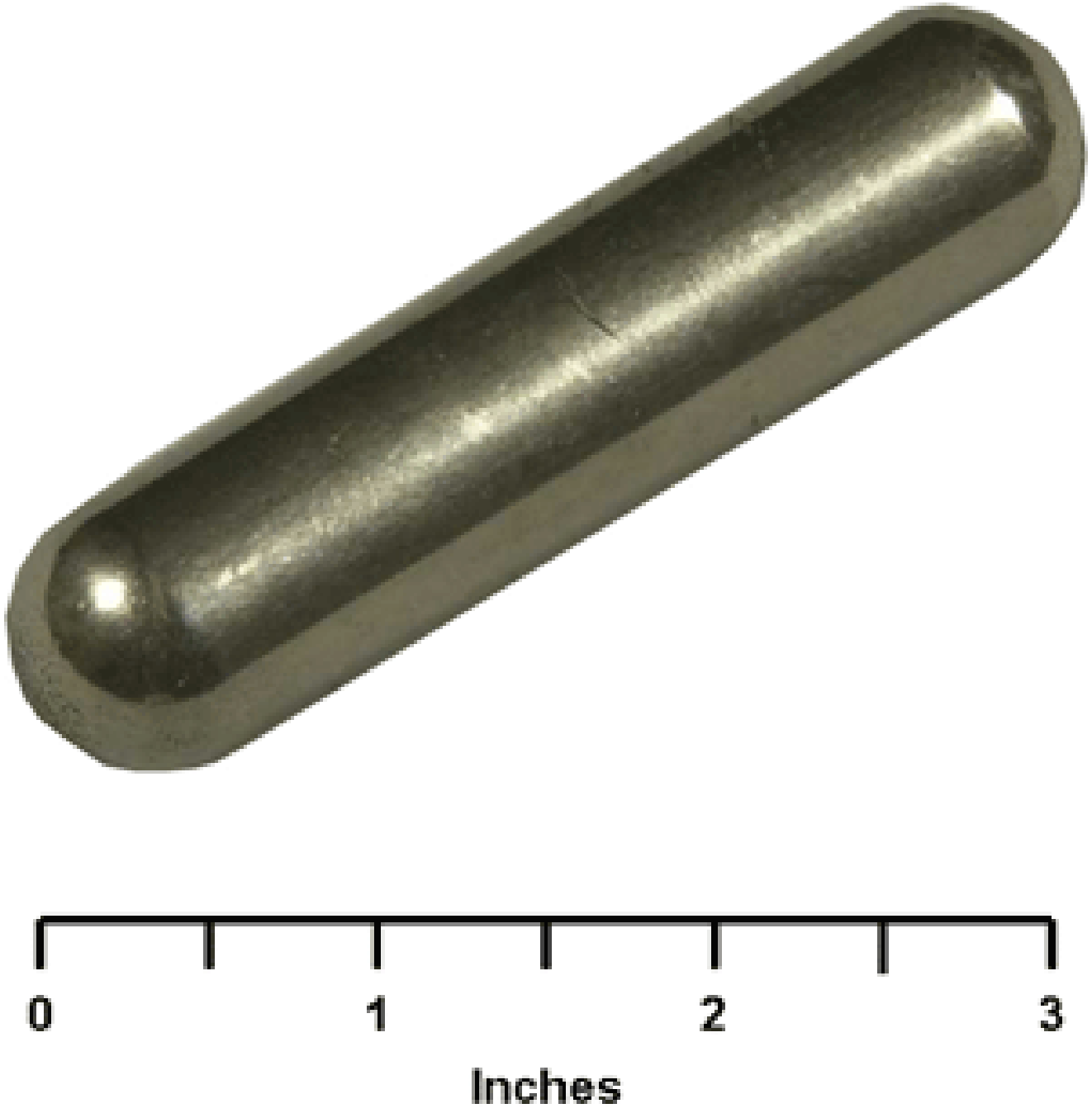

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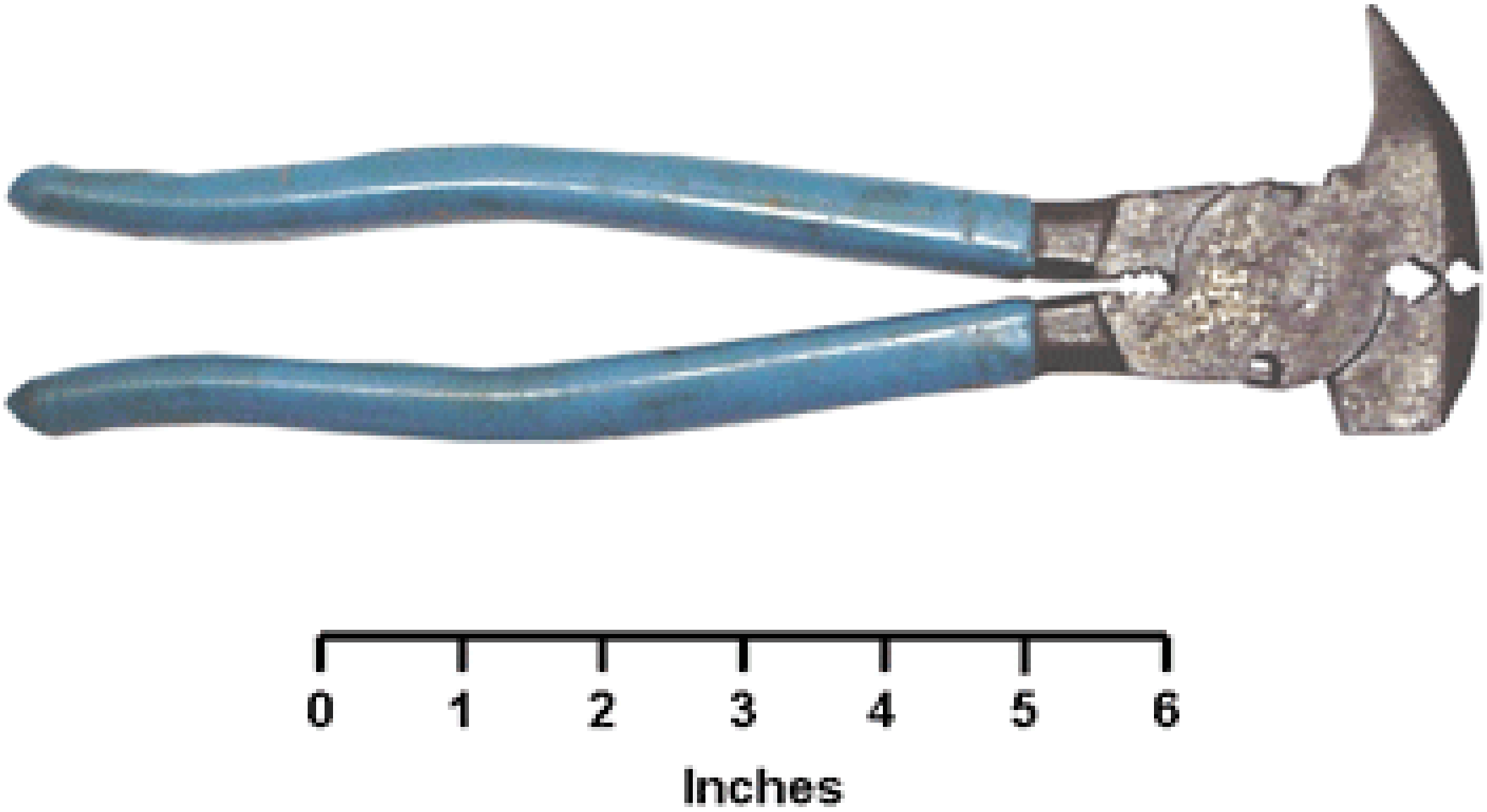

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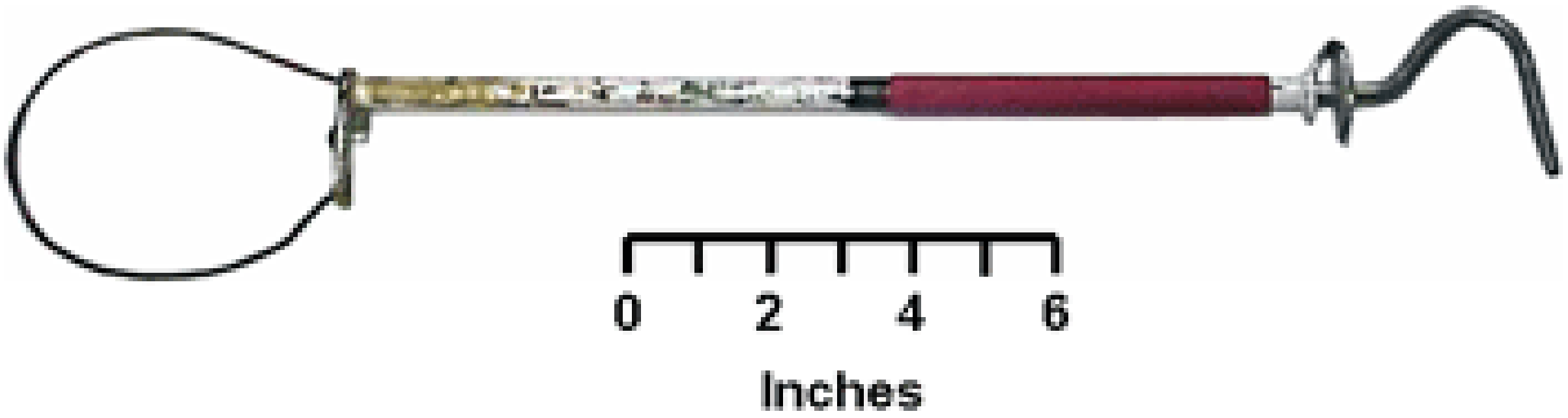

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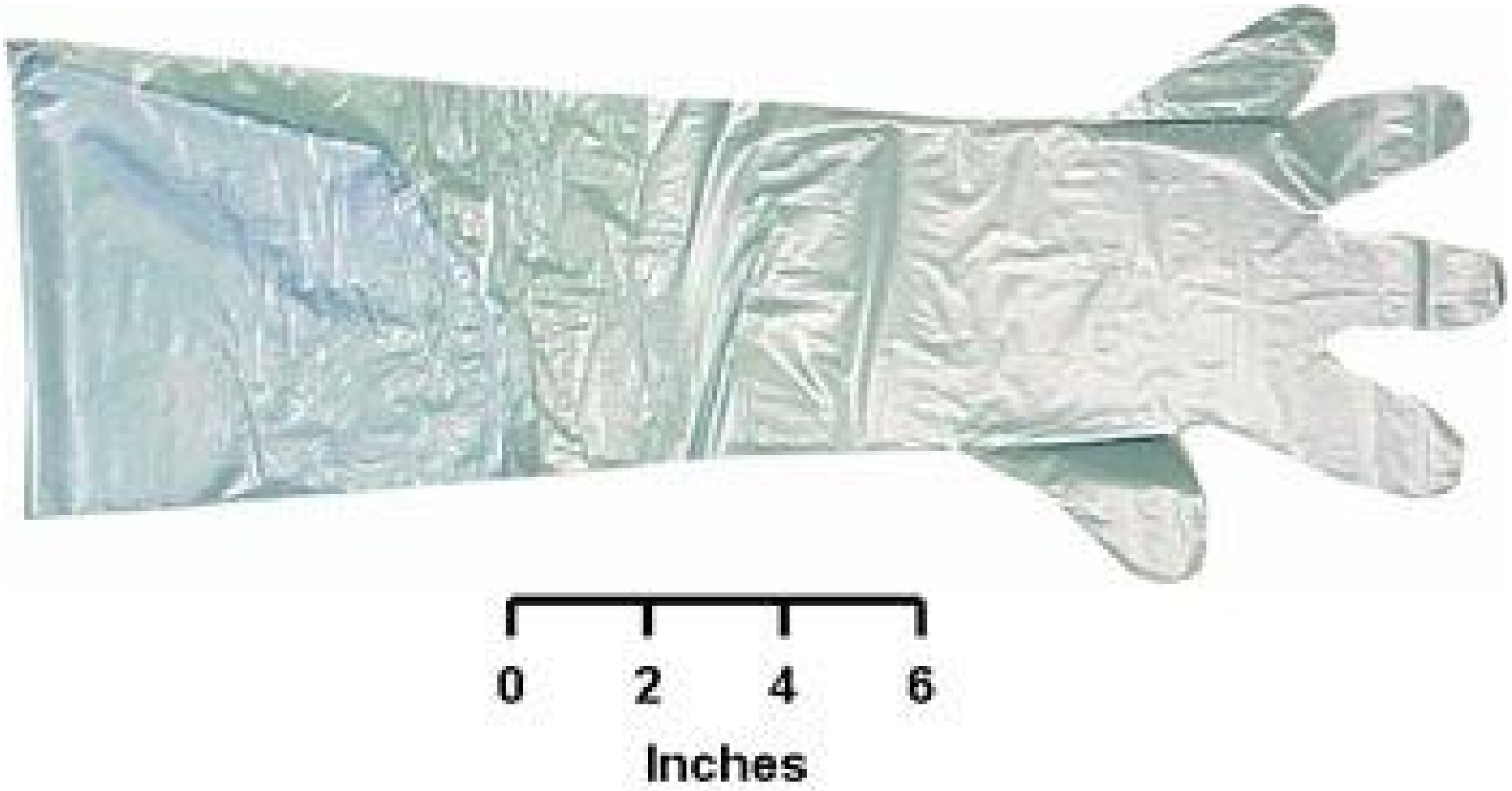

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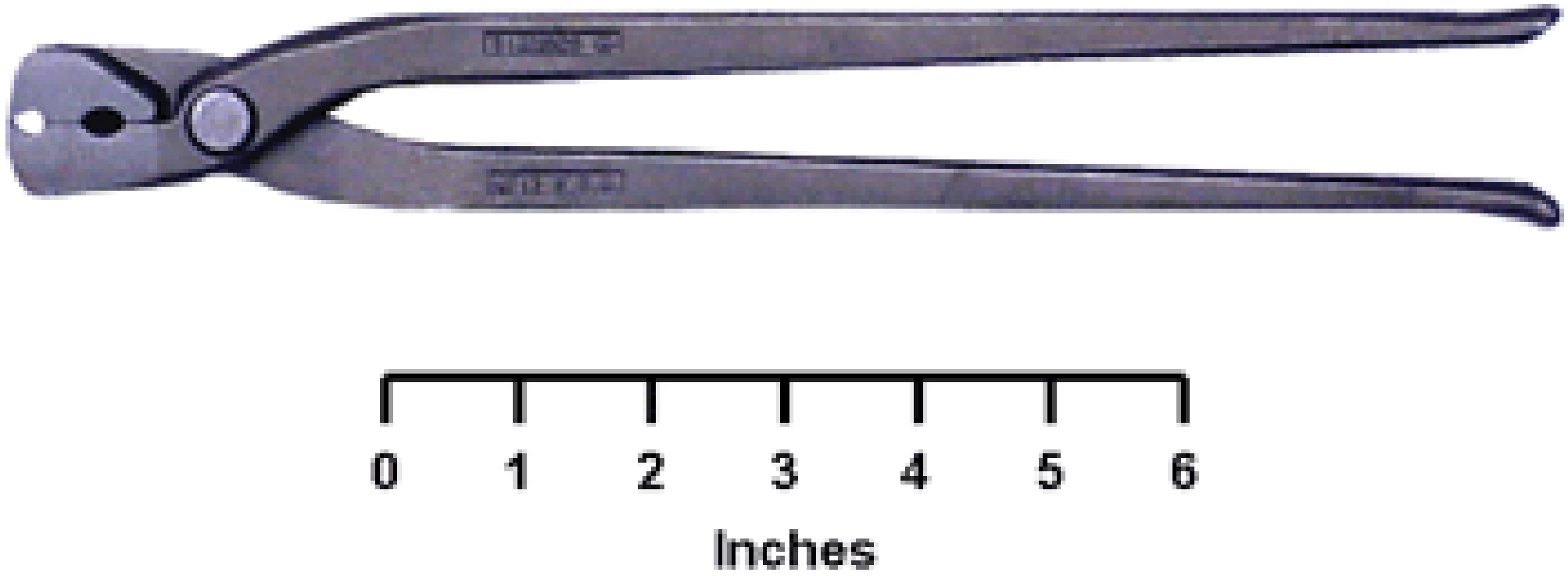

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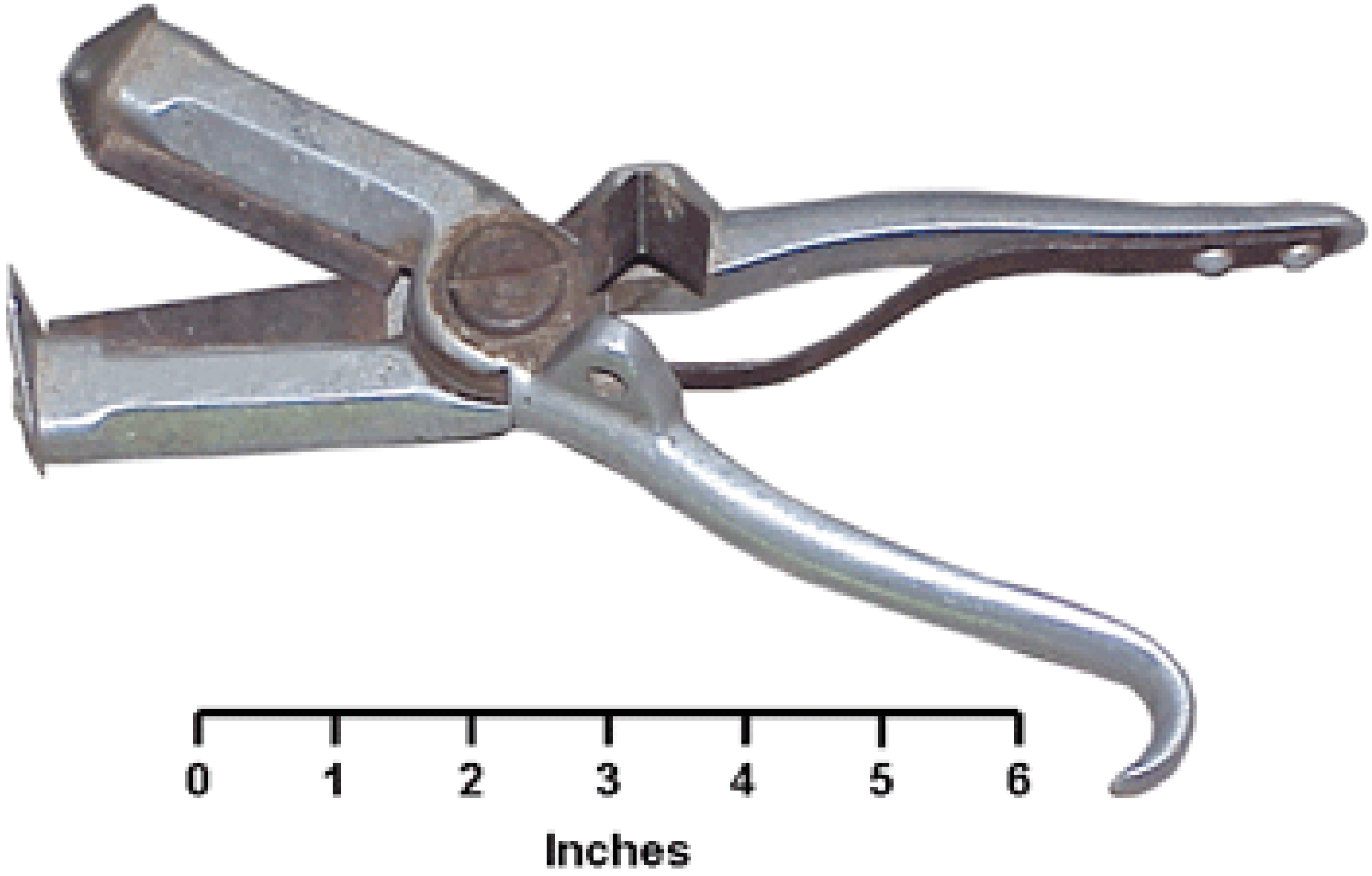

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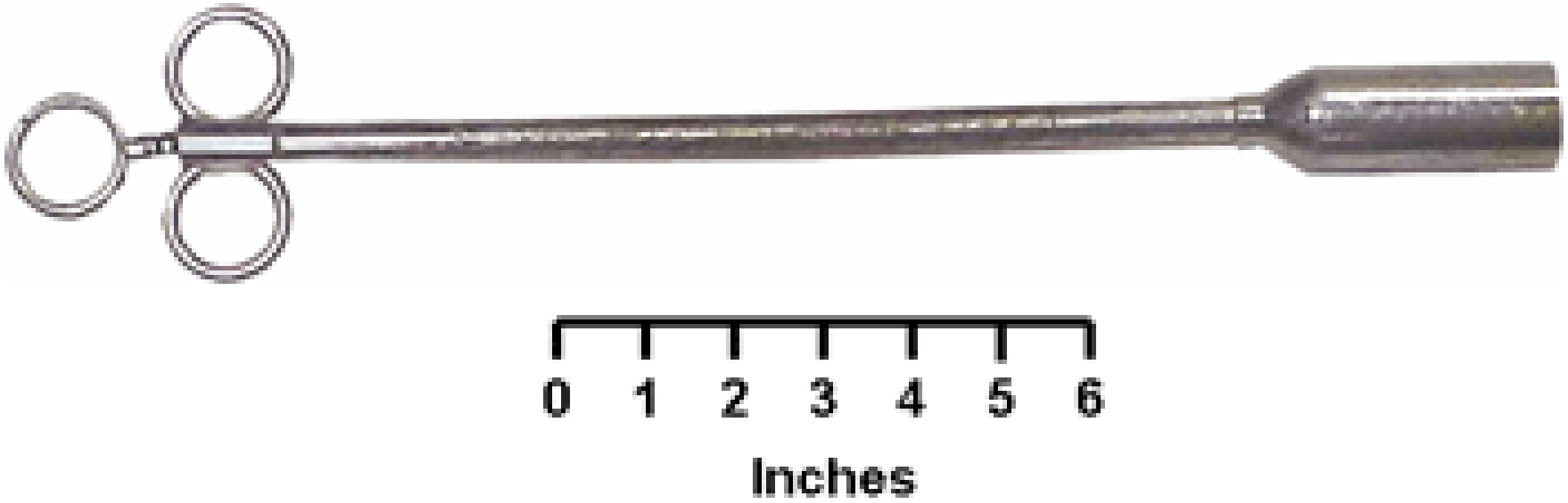

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Name_____KEY_____

Senior Livestock and Meat Equipment Identification – 2021

INSTRUCTIONS: For each picture, use the column on the right to choose the letter that indicates your answer for each piece of equipment. **You must bubble in the scantron sheet corresponding with Equipment Name**. You may fill this sheet out and keep to go over with your coaches at the end of the contest. Each question is worth 3 points (60 points total for Seniors).

	Equipment Name
1.	T
2.	J
3.	N
4.	M
5.	D
6.	F
7.	S
8.	Q
9.	I
10.	K
11.	P
12.	E
13.	A
14.	C
15.	G
16.	R
17.	O
18.	B
19.	H
20.	L

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

Livestock/Meat Equipment

A. All in one castrator/docker
B. Backfat Ruler
C. Balling gun
D. Boning knife
E. Crease Nail Puller
F. Emasculatome (Burdizzo)
G. Emasculator
H. Emulsifier
I. Fencing pliers
J. Hanging Scale
K. Hog Snare
L. Loin eye area grid
M. Meat Hook
N. Needle teeth nippers
O. Nipple waterer
P. Plastic sleeve
Q. Rumen magnate
R. Water Heater
S. Wood post electric fence insulator
T. Wool card

Name_____KEY_____

Senior Livestock Feed Identification – 2021

INSTRUCTIONS: For each picture, use the columns on the right to choose the letter that indicates your answer for each feedstuff name and for the important characteristics/use. **You must bubble in the scantron sheet corresponding with feedstuff name and characteristic/uses**. You may fill this sheet out and keep to go over with your coaches at the end of the contest. Each question is worth 3 points for each part of the question. (60 points total for Seniors).

	Feedstuff Name	Characteristic/Uses
1.	D	I
2.	I	G
3.	J	H
4.	E	D
5.	A	B
6.	G	F
7.	Q	K
8.	F	A
9.	R	M
10.	M	J

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

A. Barley (whole)
B. Blood Meal
C. Brewers dried grain
D. Corn distillers dried grain with soluble
E. Corn gluten feed
F. Dicalcium phosphate
G. Dried molasses
H. Fish meal
I. Grain sorghum (whole)
J. Ground ear corn
K. Ground limestone
L. Linseed meal
M. Liquid molasses
N. Millet (whole)
O. Oats (whole)
P. Soybean meal
Q. Trace-mineralized salt
R. Urea
S. Vitamin Premix
T. Wheat (whole)

Important Characteristics/Uses of Feedstuffs – to be used in answer column 2 by Seniors

A. A mineral that is obtained by processing rock phosphates into phosphoric acid, which is then reacted with calcium carbonate. Used in livestock, horse and poultry feeds.
B. A carbohydrate that has less energy than corn, but has more protein, lysine and fiber.
C. A carbohydrate that is widely grown in the U.S. Primarily used in human food but can be fed to livestock. Lower in energy compared to corn but higher in protein compared to corn.
D. A protein that is primarily fed to ruminants as a source of protein and energy (high fiber content limits its use in monogastrics). Contains corn bran and soluble protein.
E. A carbohydrate that is widely grown in the cool moist climates of the U.S. This feedstuff is used extensively in horse feeds and feeds for starving young animals. Can be fed whole but usually processed prior to feeding.
F. A dried carbohydrate that is highly palatable and readily available source of energy. Most commonly added to ruminant and horse diets.
G. A carbohydrate used as an energy source. It is a good feedstuff for poultry, hogs and ruminants. It has been noted that this feedstuff has approximately (on average) 15 percentage units less starch than corn silage.
H. A carbohydrate that has been ground through a hammer mill or burr mill. Reduces particle size which increases the surface area and improves starch digestibility. Due to high fiber content it is fed primarily to ruminant animals.
I. A protein that is a by-product of the distillers industry. Primarily used as a protein and energy source in ruminant and horse feeds but may be fed in limited amounts to monogastrics.
J. A carbohydrate that is highly palatable and readily available source of energy. Most commonly added to ruminant and horse diets. Is a liquid by-product of sugarcane.
K. A mineral that is commonly fed free choice to grazing animal in either loose or block form.
L. A protein that is a by-product of the meat packing industry that is produced by grinding dried blood into a meal.
M. A protein that should only be fed to ruminants. Often referred to as non-protein nitrogen. Can be toxic if fed at excessive levels.
N. A mineral that is a natural source of calcium. Also called calcium carbonate. An inexpensive source of calcium used in livestock, horse and poultry diets.

Senior Retail Meat Judging Class 1 – 2021

Bubble in placing on scantron sheet under "Placing Class 1"

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

Placing is worth a possible 50 points

Contestant Number _____

Placing Score _____ **4,1,3,2**

3-2-2

University of Kentucky
College of Agriculture
Animal Sciences Department

Contestant's Name

_____

_____

Address

_____

_____

County

_____

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

Senior Hay Judging Class – 2021

You may keep this for your own records. Please make sure to bubble your scantron in placing column #2

(50 points possible)

Contestant Number _____**KEY**_____

Placing Score _____**3,1,2,4**_____

3-6-2

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:
Rank these hay samples in the order that you would utilize them as the sole ration for mature dry Commercial Beef Cows in mid gestation to maintain a body condition score (BCS) of a number five (5), currently the cows average a body condition score (BCS) of a number four (4). Any of the different hays may be purchased for $100.00 per ton.

Nutrient Requirements for mature 1200 pound, dry beef cows in mid gestation

Dry Matter: 25 (lbs.)
Crude Protein: 9%
TDN: 60%

Forage Analysis

	Hay Lot #1	Hay Lot #2	Hay Lot #3	Hay Lot # 4
Dry matter	88.6%	87.9%	88.9%	88.9%
Crude protein	11.9%	9.5%	12.2%	8.5%
Acid detergent fiber (ADF)	41.5%	44.8%	40.9%	45.7%
Neutral detergent fiber (NDF)	61.4%	67.5%	60.2%	68.2%
Total digestible nutrients (TDN)	64.5%	60.5%	65.1%	59.5%

Matrix® (MERCK ANIMAL HEALTH)

Label | White papers | Coupons | Other | Image

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

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

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.

MATRIX®

Intervet/Merck Animal Health

(altrenogest)

FOR USE IN ANIMALS ONLY

Drug Facts:

Active ingredients: Altrenogest solution 0.22% (2.2 mg/mL)

Use: For synchronization of estrus in sexually mature gilts that have had at least one estrous cycle. Treatment with altrenogest solution 0.22% results in estrus (standing heat) 4 to 9 days after completion of the 14-day treatment period.

Caution: Federal law prohibits extra-label use of this drug to enhance food and/or fiber production in animals.

Do Not Use: In gilts having a previous or current history of uterine inflammation (i.e., acute, subacute or chronic endometritis).

WARNINGS:

User/Handler Safety:

Keep this and all medication out of the reach of children.

Avoid skin contact. Wear vinyl, neoprene or nitrile protective gloves when handling this product. DO NOT USE LATEX GLOVES. Pregnant women or women who suspect they are pregnant should not handle MATRIX® (altrenogest) Solution 0.22%. Women of childbearing age should exercise extreme caution when handling this product. Accidental absorption could lead to a disruption of the menstrual cycle or prolongation of pregnancy. Wash off accidental spillage on the skin immediately with soap and water.

People who should not handle this product:

1. Women who are or suspect they are pregnant.
2. Anyone with thrombophlebitis or thromboembolic disorders or with a history of these events.
3. Anyone with cerebral-vascular or coronary-artery disease.
4. Women with known or suspected carcinoma of the breast.
5. People with known or suspected estrogen-dependent neoplasia.
6. Women with undiagnosed vaginal bleeding.
7. People with benign or malignant tumors which developed during the use of oral contraceptives or other estrogen containing products.
8. Anyone with liver dysfunction or disease.

Accidental exposure: Altrenogest is readily absorbed from contact with the skin. In addition, this oil based product can penetrate porous gloves. Altrenogest should not penetrate intact vinyl, neoprene or nitrile protective gloves; however, if there is leakage (i.e., pinhole, spillage, etc.) the contaminated area covered by such occlusive materials may have increased absorption. DO NOT USE LATEX GLOVES

The following measures are recommended in case of accidental exposure.

Skin Exposure: Wash immediately with soap and water.

Eye Exposure: Immediately flush with plenty of water for 15 minutes. Get medical attention.

If Swallowed: Do not induce vomiting. MATRIX® (altrenogest) Solution 0.22% contains an oil. Call a physician. Vomiting should be supervised by a physician because of possible pulmonary damage via aspiration of the oil base. If possible, bring the container and labeling to the physician.

Effects of Overexposure: There has been no human use of this specific product. The information contained in this section is extrapolated from data available on other products of the same pharmacological class that have been used in humans. Effects anticipated are due to the progestational activity of altrenogest. Acute effects after a single exposure are possible; however, continued daily exposure has the potential for more untoward effects such as disruption of the menstrual cycle, uterine or abdominal cramping, increased or decreased uterine bleeding, prolongation of pregnancy and headaches. The oil base may also cause complications if swallowed. In addition, the list of people who should not handle this product is based upon the known effects of progestins used in humans on a chronic basis.

Human Food Safety: Gilts must not be slaughtered for human consumption for 21 days after the last treatment.

Environmental Safety: Place empty drug containers, waste from rinsing the dosing gun, protective gloves or other articles that come in contact with this product in a leak-resistant container for disposal in accordance with applicable Federal, state and local regulations.

Adverse Reactions and Potential Safety Hazards: Underfeeding of MATRIX® may lead to the occurrence of cystic follicles.

When Using This Product: A small percentage (less than 5%) of treated gilts may exhibit estrus (standing heat) during the 14-day treatment period. Gilts nearing estrus at the start of the 14-day treatment period may express estrus early in that period.

Dosage and Directions: While wearing protective gloves, remove shipping cap and seal; replace with enclosed plastic dispensing cap. Connect the Matrix® Dosing Device to the solution bottle according to the dosing device instructions provided as an attachment to the Matrix® Dosing Device package.

Administer 6.8 mL (15 mg altrenogest) per gilt once daily for 14 consecutive days. Treat gilts on an individual animal basis by top-dressing MATRIX® on a portion of each gilt's daily feed allowance. To produce the desired synchronization of estrus in a group of gilts, treat all of the gilts daily for the same 14-day period.

Other Information:

Storage: Store Matrix® solution bottle and dosing device when loaded with solution for continued use at or below room temperature, 77°F (25°C). Close tightly.

Questions? Comments?

- To report adverse reaction call Merck at 1-800-211-3573
- To obtain product information, including material safety data sheet (MSDS), call 1-800-441-8272.
- For additional information about adverse drug experience for animal drugs, contact FDA at 1-888-FDA-VETS or online at http://www.fda.gov/Animal/Veterinary/SafetyHealth

www.merck-animal-health-usa.com

NADA #141-222, Approved by FDA

Restricted Drug (California) - use only as directed.

Not for Human Use

Manufactured for: Intervet Inc (d/b/a Merck Animal Health), Madison, NJ 07940 a subsidiary of Merck & Co.

Net Contents:	
1000 mL	134796 R2

CPN: 1047347.3

Name_____**KEY**_____

Senior Individual Quality Assurance – 2021

You are the owner of a show pig operation in western Kentucky. You own 25 gilts and want them to come into estrus at two different times. You want the first group (15 gilts) to come into estrus September 9th. You are wanting the second group (10 gilts) to come into estrus December 1st. You heard that Matrix can help synchronize the gilts to come into estrus during the same time period. You decide to purchase Matrix for the breeding season and give it a try. Please use the Matrix label and your knowledge of quality assurance management to answer the **20 questions** below relating to quality assurance.

Circle your answers and keep this sheet to go over with you coach at the conclusion of the contest. Bubble in scantron sheet in the Quality Assurance box. (20 questions worth 3 points per question for 60 total points).

1. **Matrix should be used on which of the following?**

   A.) Gilts who have not had at least one estrus cycle

   B.) Barrows for increased weight gain

   C.) Sexually mature gilts that have had at least one estrus cycle

   D.) Both A & C

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

   A.) On the skin

   B.) Intramuscular

   C.) Subcutaneously

   D.) Top dressing on feed

3. **What could be an adverse reaction from underfeeding Matrix?**

   A.) Lead to the occurrence of cystic follicles

   B.) Uterine inflammation

   C.) Death

   D.) None of the above

4. **What are the anticipated effects of human (female) overexposure to Matrix?**

   A.) Disruption of menstrual cycle

   B.) Uterine or abdominal cramping

   C.) Prolongation of pregnancy

   D.) All of the above

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

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

B.) Carefully read and follow the entire insert for Matrix 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 Matrix supplied in?**

A.) 20 ML B.) 75 ML C.) 250 ML D.) 1000 ML

7. **If accidental eye exposure to those administering happens, what should you do?**

A.) Flush with plenty of water for 15 minutes

B.) Seek prompt medical attention

C.) Use eye solution to flush out

D.) Both A & B

8. **What type of gloves should you not use when handling Matrix?**

A.) Latex B.) Vinyl C.) Neoprene D.) Nitrile

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

A.) Through a licensed veterinarian C.) From a neighbor

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

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

A.) Does not matter as long as it is closed C.) 36 degrees F to 46 degrees F

B.) At or below room temperature D.) None of the above

11. When using this product what percentage of treated gilts may exhibit estrus during the 14-day treatment period?

A.) 5 %

B.) 5 -10 %

C.) Less than 5 %

D.) Depends on breed of gilts

12. How long must you wait to take a gilt to slaughter after administering her last treatment of Matrix?

A.) 10 days

B.) 15 days

C.) 21 days

D.) Depends on the dosage

13. Which of the following are advised not to handle matrix?

A.) Women who are or suspect they are pregnant

B.) Anyone with liver dysfunction or disease

C.) People with known or suspected estrogen-dependent neoplasia

D.) All of the above

14. Your neighbor sees that you are able to bring gilts into estrus with Matrix. He knows that it will increase feed intake on gilts when they are on Matrix. He is having trouble getting his barrows to eat and would like to borrow some of your Matrix to help his barrows gain weight. What should your response be?

A.) If you handle it safely and bring it back, you are welcome to it.

B.) You need to buy your own.

C.) Federal law prohibits extra-label use of this drug to enhance food and/or fiber production in animals.

D.) None of the above.

15. How much Matrix should be administered to a gilt each day?

A.) 6.8 mL once a day

B.) 6.8 mL twice a day

C.) 3.4 mL twice a day

D.) Will depend on how big the gilt is

16. How long should you administer Matrix to a gilt you wish to bring into estrus?

A.) 12 days

B.) 25 days

C.) Until you see her showing signs of estrus

D.) None of the above

17. Where is this a restricted drug?

A.) New Jersey

B.) Kentucky

C.) Colorado

D.) California

18. True or False: You should expect a standing heat 2 days after completing the 14-day Matrix treatment period.

A.) True

B.) False

19. True or False: Group 1 gilts will be bred on September 9th to farrow on January 1st.

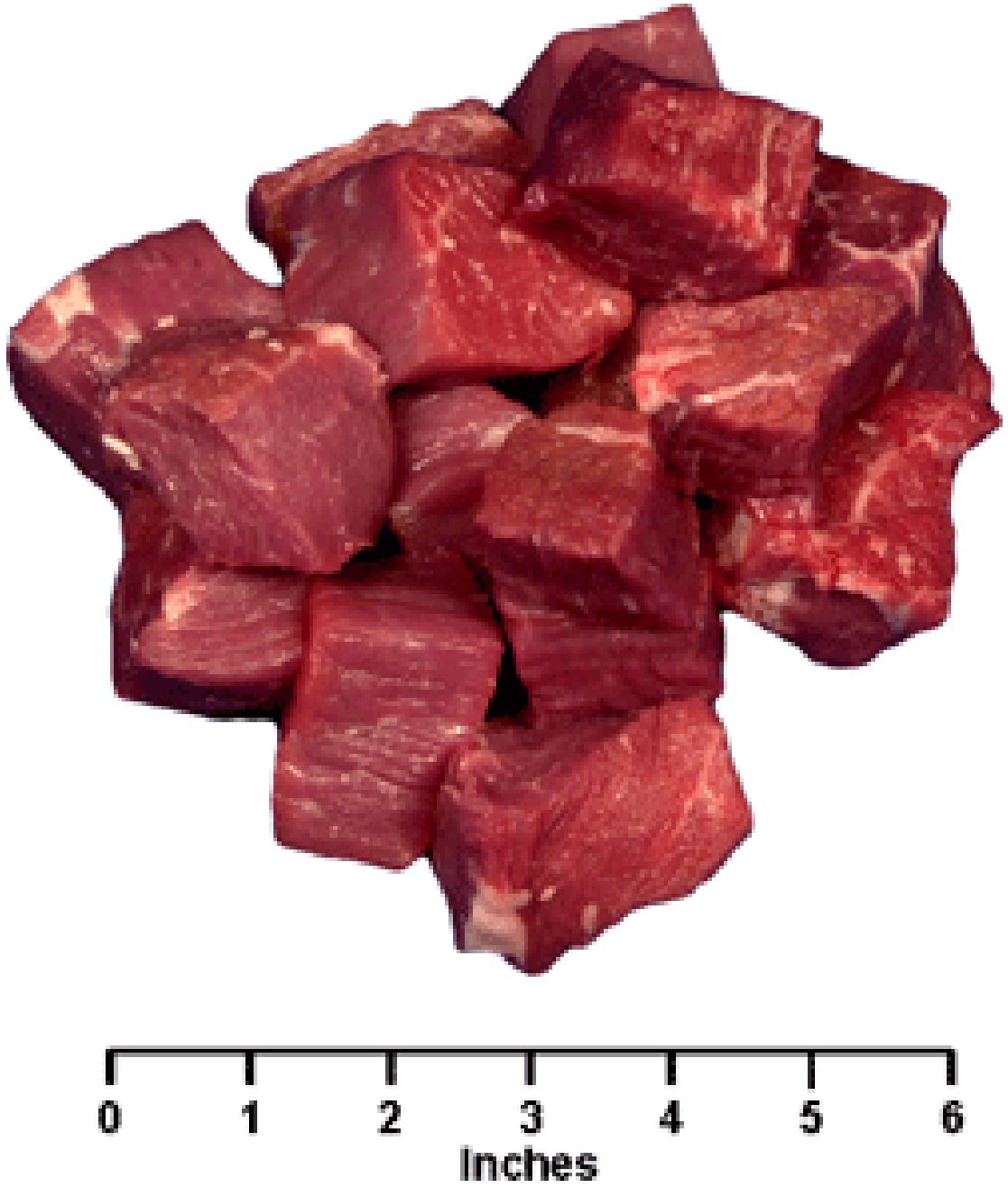
A.) True

B.) False

20. True or False: You should expect all of Group 2 gilts to come into estrus at the same time.

A.) True B.) False

1.



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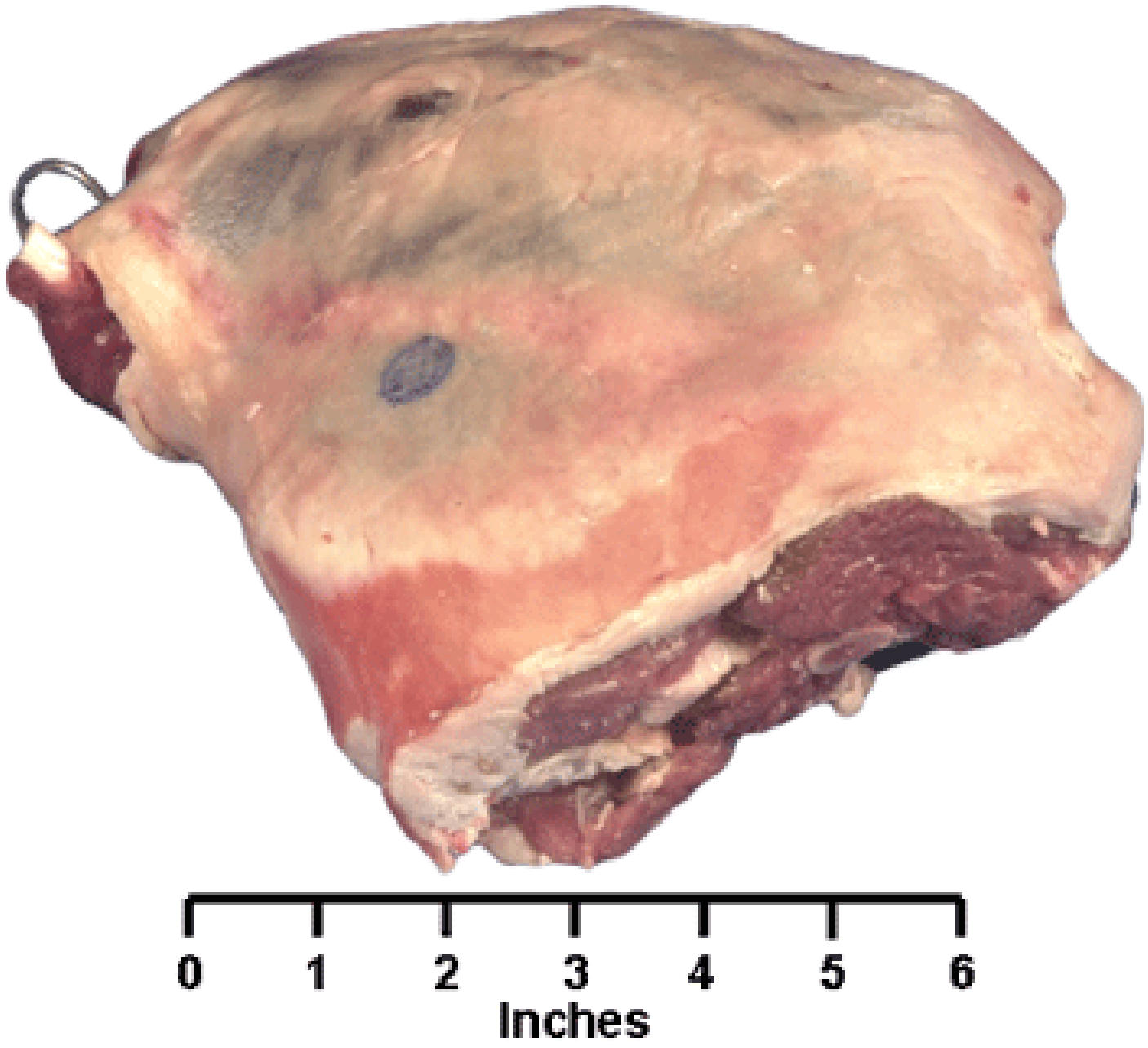

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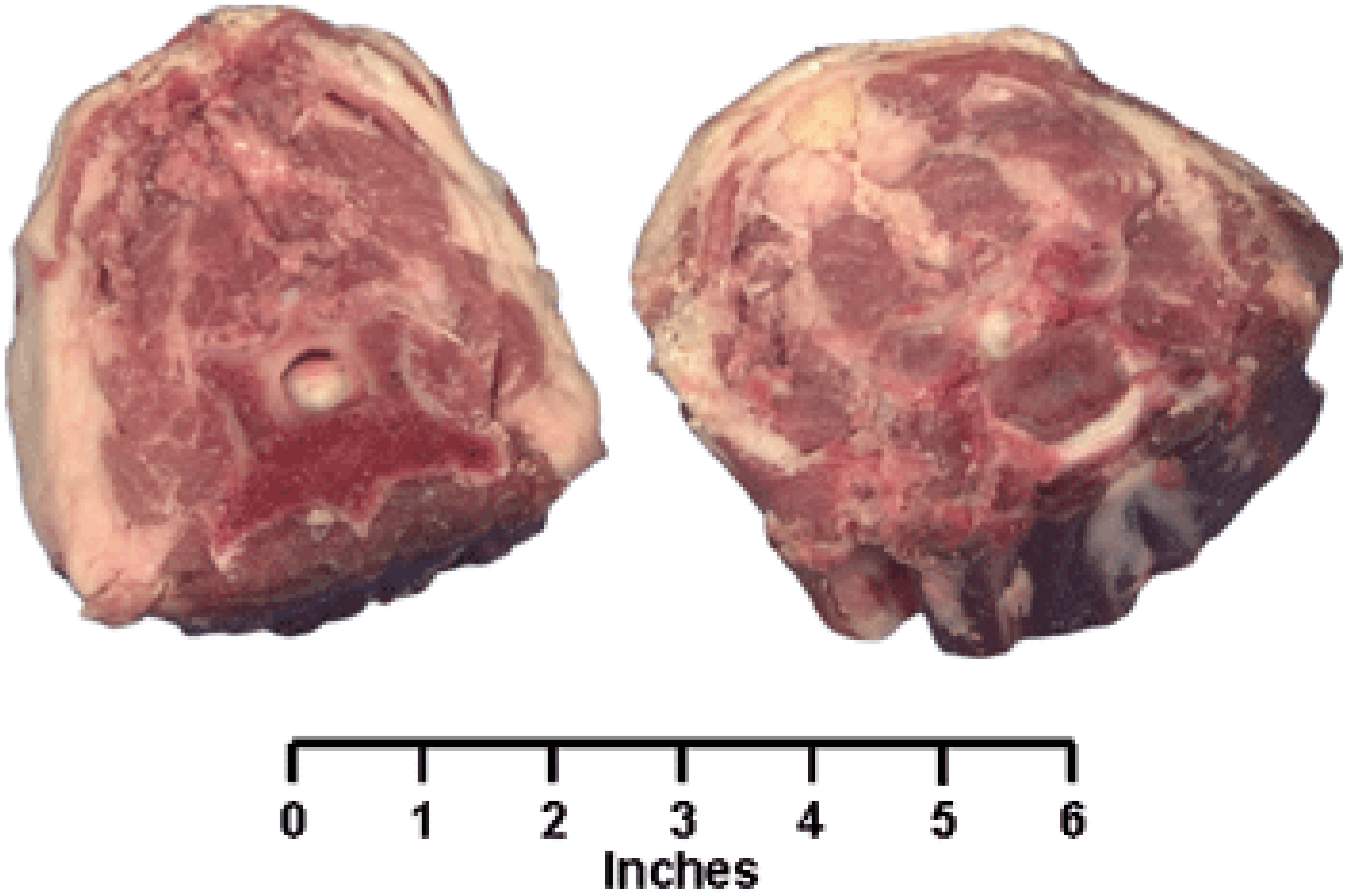

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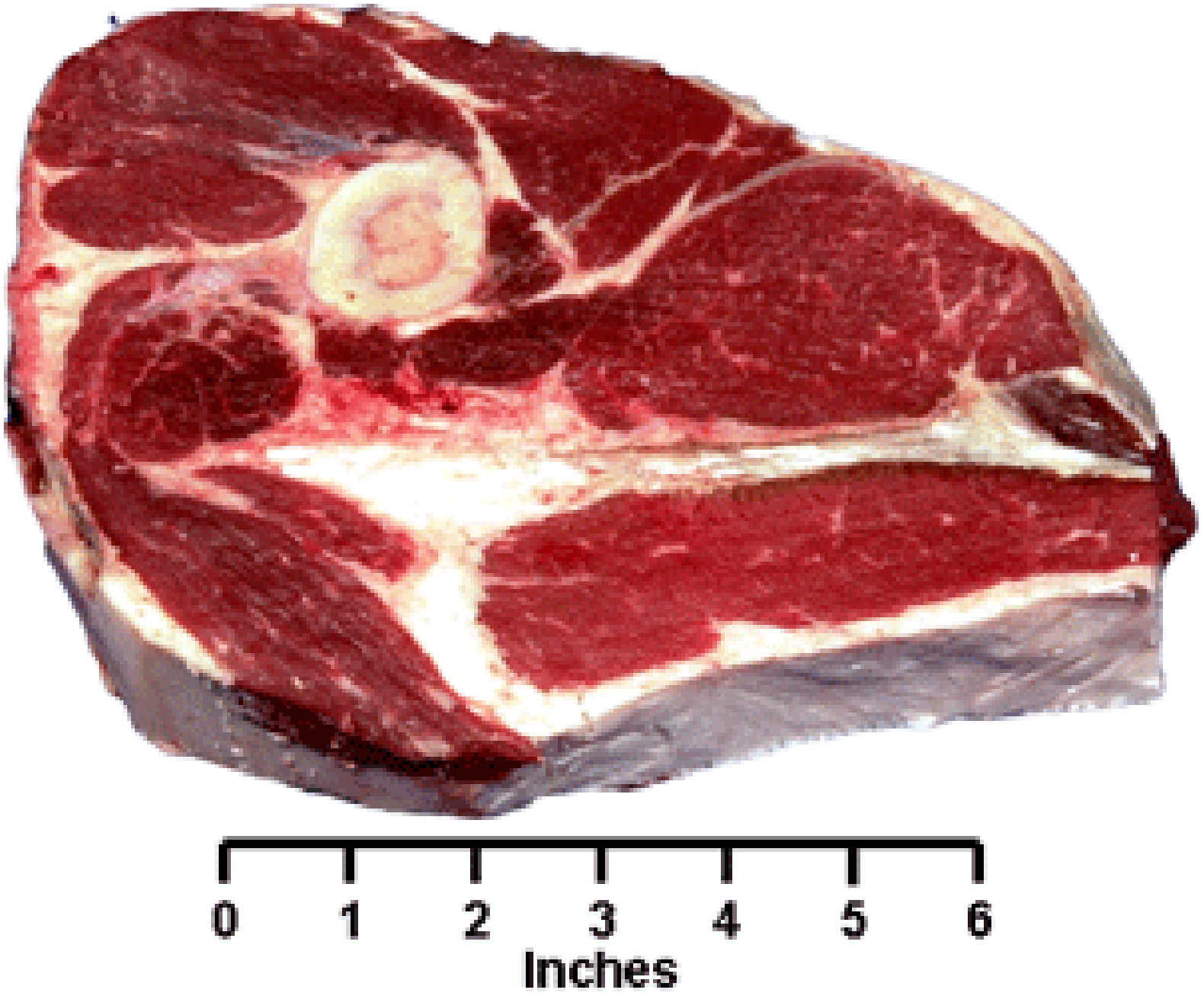

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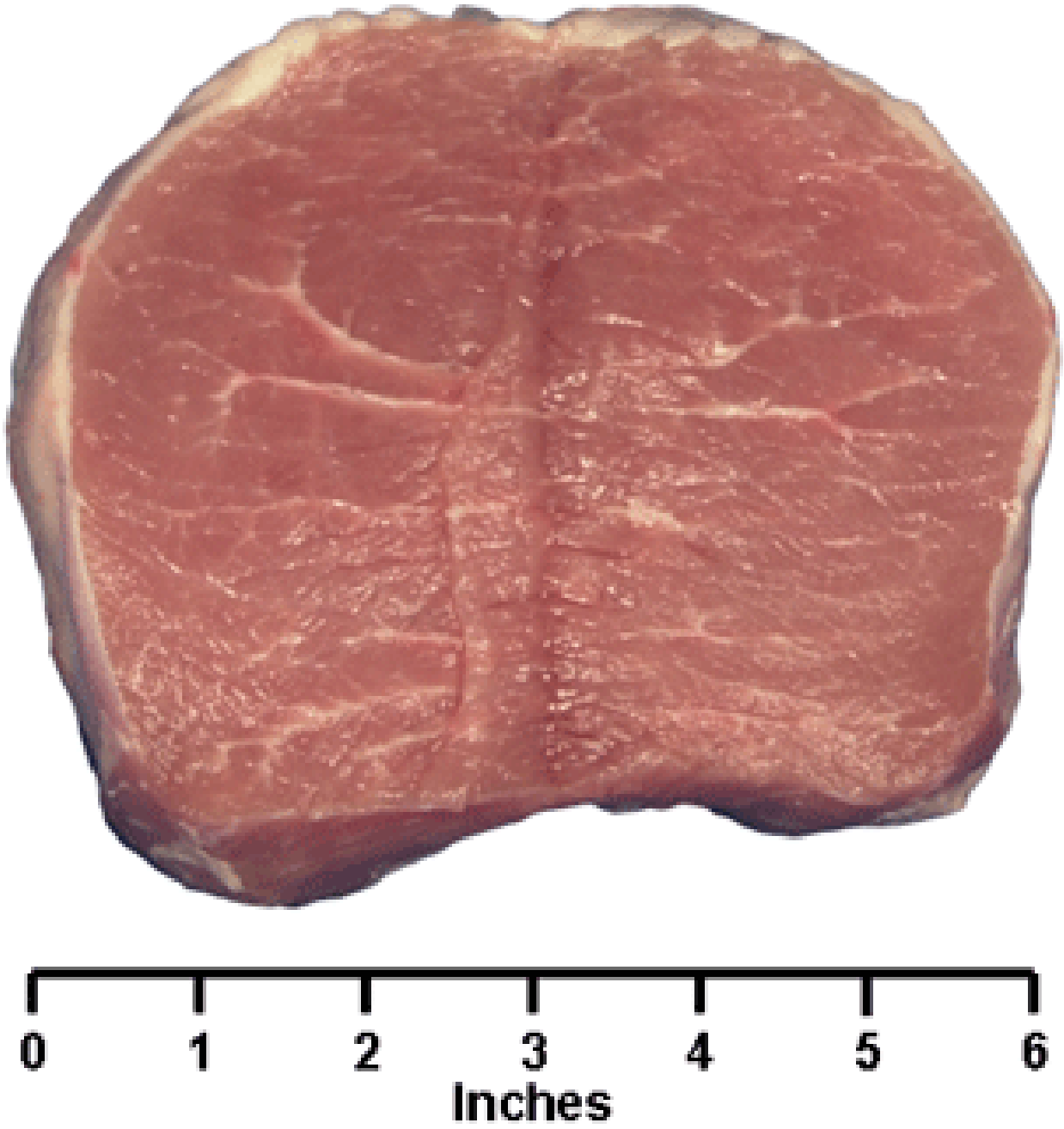

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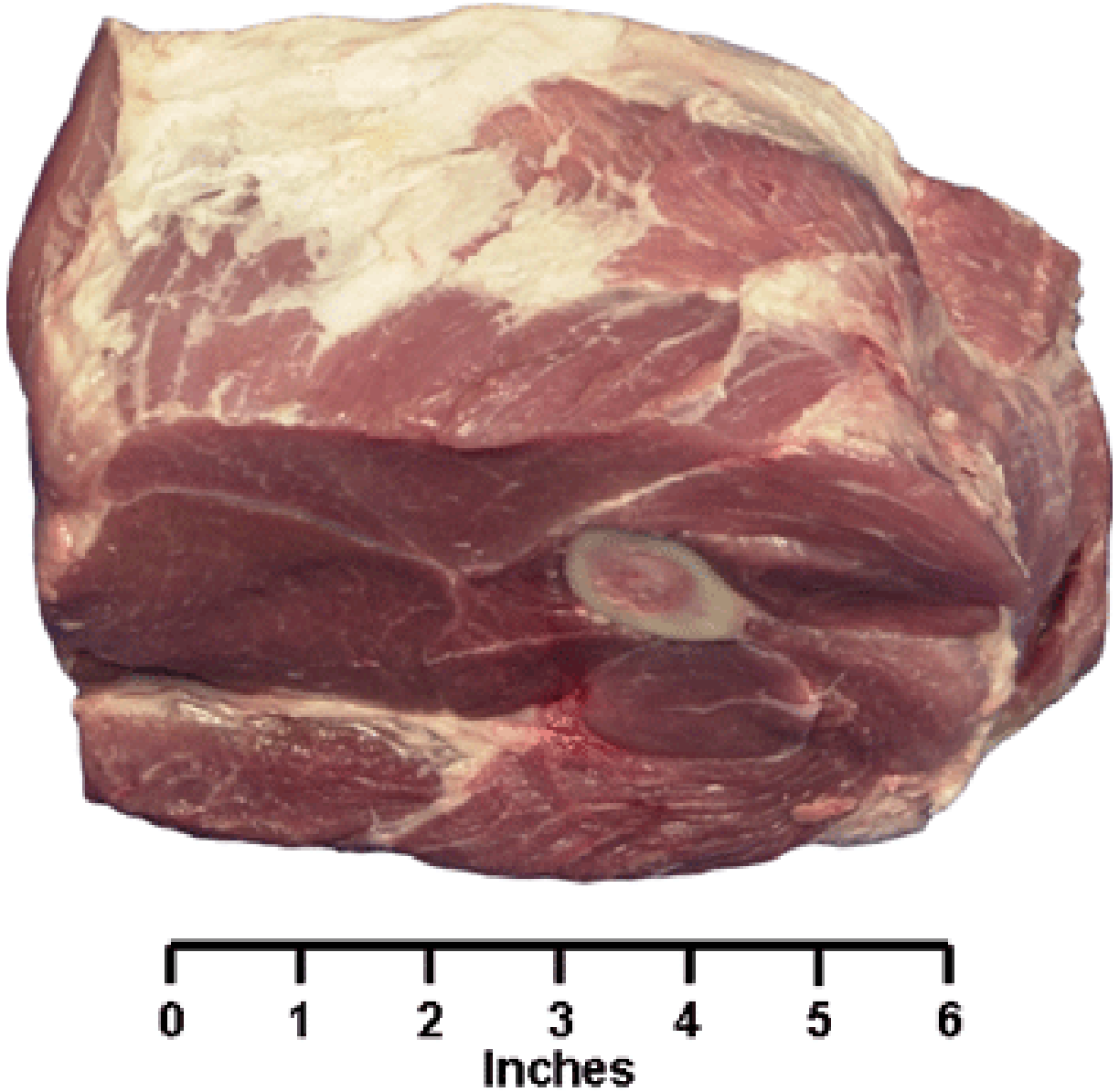

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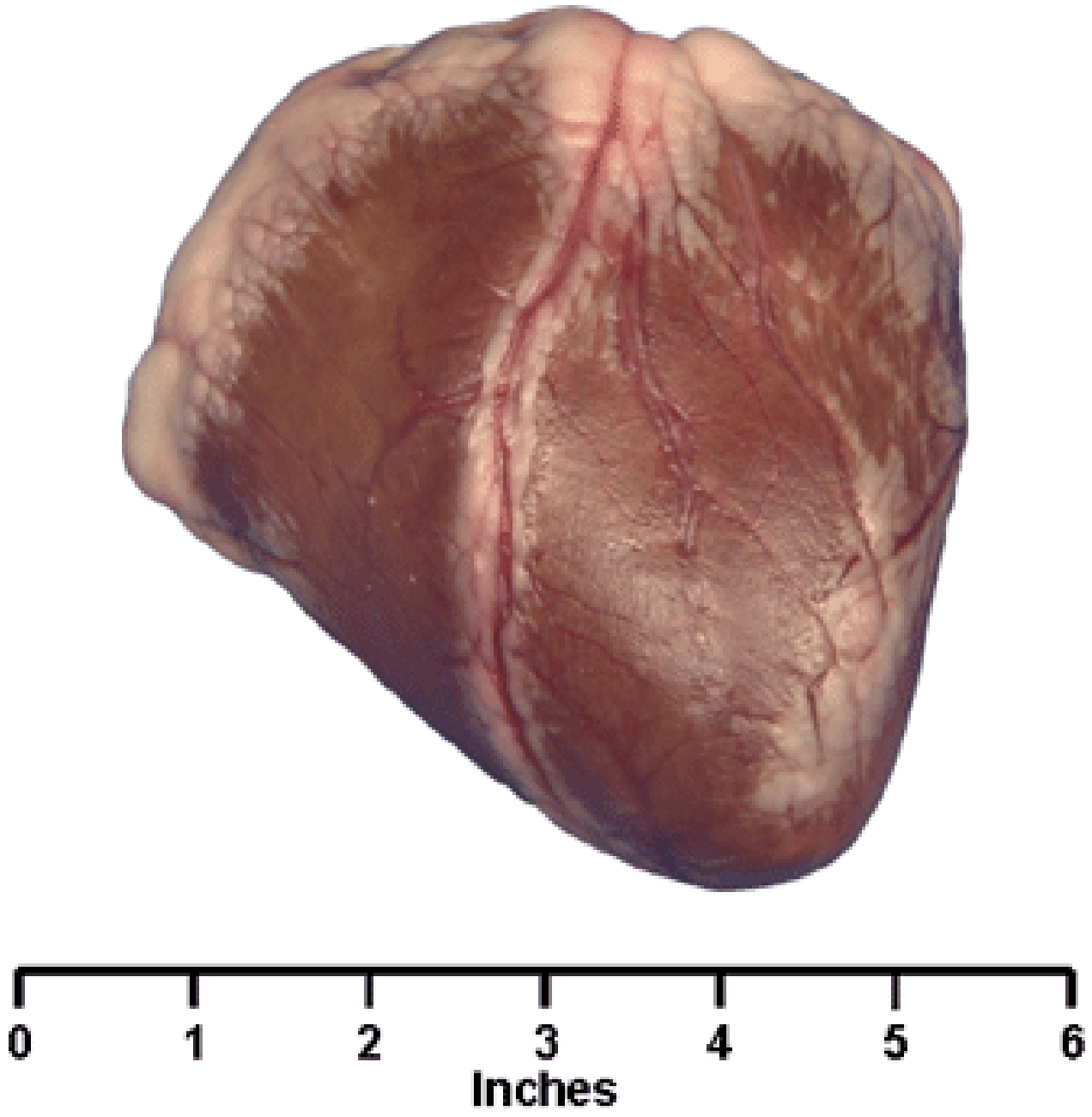


Name_____KEY_____

Senior Retail Meat Cut Identification – 2021

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. **You must bubble in the scantron sheet corresponding with Species, Primal Cut, and both digits of the Retail cut**. You may fill this sheet out and keep to go over with your coaches at the end of the contest. **Seniors** provide answers for retail cut name, species of cut, and wholesale cut of origin. Each question is worth 2 points each (60 points total for Seniors).

ID #	Species	Primal Cut	Retail Cut First Digit	Retail Cut Second Digit
1	B	E	0	1
2	B	B	2	0
3	P	K	8	4
4	L	F	5	1
5	L	I	6	5
6	B	A	0	4
7	P	M	7	3
8	P	N	8	1
9	B	D	3	8
10	L	J	6	6

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

Beef Wholesale Cuts
A. Chuck
B. Loin
C. Rib
D. Round
E. Variety cut

Lamb Wholesale Cuts
F. Leg
G. Loin
H. Rack
I. Shoulder
J. Variety cut

Pork Wholesale Cuts
K. Belly (Side, Bacon)
L. Boston Butt
M. Loin
N. Picnic Shoulder

Species of Cut – to be used in answer column 1 by Seniors

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

B. Beef L. Lamb P. Pork

Retail Names – to be used in answer column 3 by Seniors

Beef Retail Meat Cuts
01. Beef for stew
02. Brisket, point half
03. Brisket, whole
04. Arm roast
05. Arm roast, boneless
06. Arm steak
07. Arm steak, boneless
08. Blade roast
09. 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. Heart

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

Name_____**KEY**_____**County**_____

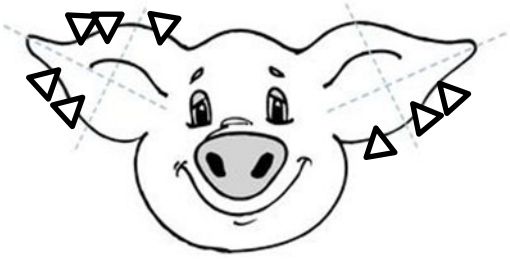
Senior Quiz – 2021

Circle your answer on this sheet and bubble your answers in the Exam section of your scantron sheet. Only use a number 2 pencil on your scantron sheet. You can keep this sheet for reference to review with your coach after the contest. (60 pts. Total)

1.) For Scrapie, which codon is tested to determine susceptibility to develop this genetic defect?

a. 107
c. 717
b. 163
d. 171

2.) Please identify the ear notch on the pig below:



a. 51-5
c. 69-5
b. 51-7
d. 69-7

3.) Which state in the U.S. has the highest meat goat population?

a. Oklahoma
c. California
b. Texas
d. Kentucky

4.) To minimize the prevalence of anthelmintic resistance in internal parasites, you are adopting a strategic deworming method. At which FAMACHA scores would deworming an individual be required?

a. FAMACHA 1
c. FAMACHA 4
b. FAMACHA 2
d. Anytime the sheep/goat looks sick

5.) What animal is most likely to be affected by parasitism by the barber's pole worm?

a. Poultry
c. Dairy Cattle
b. Swine
d. Sheep

6.) What is the age range of a beef carcass with a maturity level of C?

a. 30-42 months
c. 72-96 months
b. 42-72 months
d. 96+ months

7.) What factors determine yield grade of slaughter cattle?

a. Marbling and Maturity

b. 12th rib fat thickness; hot carcass weight; kidney, pelvic and heart fat; Ribeye Area

c. Ribeye area; 12th rib fat thickness; marbling; kidney, pelvic and heart fat

d. Marbling and 12th rib fat thickness

8.) You have just purchased a group of feeder calves that you wish to finish on your farm. These calves have previously consumed a forage based diet with little grain supplementation. You intensely transition the calves to a diet that contains 7.5% alfalfa hay, 37.5% high moisture corn, 25% dry rolled corn, 25% corn gluten feed and 5% supplement. Which of the following conditions should you have a serious concern about?

a. Acidosis

b. Iron Deficiency

c. Grass tetany

d. Scrapie

9.) If your doe flock consists of 300 does and you have a 120% kidding rate, how many does will you need to retain to if you want to keep 25% of the female kids as replacements (assume 1:1 ratio of male to female progeny)?

a. 35

b. 40

c. 45

d. 50

10.) Bull A has a weaning weight EPD of +80. Bull B has a weaning weight EPD of +50. If feeder calves are selling for $150 cwt, how much more will calves sired by Bull A be expected to be worth than calves sired by Bull B?

a. 30

b. 35

c. 40

d. 45

11.) What is the reproductive organ in a doe where kids grow and develop?

a. Fallopian Tubes

b. Uterus

c. Cervix

d. None of the above

12.) What is the national average of pigs weaned per litter?

a. 4

b. 14

c. 9

d. 18

13.) A boar with one or both testicles retained within the body cavity is called a _____?

a. Cryptorchid

b. Chomper

c. Unseen boar

d. Boar Taint

14.) Which of the following would impact the dressing percentage in a negative manner on a beef carcass?

a. Amount of fill
b. Mud
c. Weight of hide, head and shanks
d. All of the above

15.) In order for a 14 month old bull to pass a Breeding Soundness Exam, the bull must have a minimum of _____ scrotal circumference?

a. 28 cm
b. 30 cm
c. 32 cm
d. 34 cm

16.) What is the common dressing percent for an unshorn lamb?

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

17.) A steer calf that carries the NH gene (waterhead genetic deformity found in Angus and Angus based cattle) has what percentage of passing the gene NH gene on to future generations?

a. 25%
b. 50%
c. 75%
d. None of the above

18.) On average how many pounds of feed does a pig eat to gain 1 pound of weight?

a. ½ lbs.
b. 1 lb.
c. 3 lbs.
d. 5 lbs.

19.) Which of the following is not an energy feed?

a. Barley
b. Steam flakes
c. Soybean hulls
d. Fish Meal

20.) Which of the following cattle diseases or disorders could be transmitted through a tick bite?

a. Blackleg
b. Anaplasmosis
c. Bovine Viral Diarrhea
d. Bovine Respiratory Disease Complex

21.) What livestock industry has operations that are "totally intergrated"?

a. Cattle
b. Sheep
c. Swine
d. Goat

22.) What is the term that refers to a sheep or goat that has a jaw defect in which the top jaw is overshot (teeth hit in the back of the dental pad)?

a. Monkey Mouth
b. Scrapie
c. Parrot Mouth
d. Spider Syndrome

23.) Which one of the following hormones maintains pregnancy in a mature Hampshire ewe?

a. Progesterone
c. Lutalyse
b. Oviduct
d. Estrogen

24.) Why would you use a CIDR device in a Simmental cow?

a. To treat bloat
c. To apply a dewormer
b. To synchronize estrus
d. To measure the quality of the fleece

25.) The American Royal Livestock Show is held where?

a. Denver
c. Houston
b. Kansas City
d. Louisville

26.) Who is the current Kentucky Commissioner of Agriculture?

a. James Comer
c. Matt Bevin
b. Andy Beshear
d. Ryan Quarles

27.) Myotonic Congenita (Fainting Goat Syndrome) is a condition that affects:

a. Muscle tissue
c. Gastrointestinal tract
b. Nervous tissue
d. Skeletal tissue

28.) The term expressing the color change in freshly cut beef from dark purple to cherry red is which of the following?

a. Freshening
c. Bleeding
b. Reddening
d. Bloom

29.) Which of the following traits have the lowest heritability in cattle?

a. Ribeye Area
c. Weaning Weight
b. Marbling
d. Heifer Pregnancy

30.) Which vitamin is used as a treatment for polio in sheep?

a. Niacin
c. Vitamin K
b. Thiamin
d. Ascorbic acid

County/County Team #_____KEY_____

Team Members _____

_____

Senior Team Breeding Exercise – 2021

Your group is working with Rancher Randy. Randy is looking to purchase a new bull for his operation. Randy has an Angus based cow herd. The herd includes both mature cows and heifers that run together. Unfortunately, Randy cannot separate the cows from the heifers and will put the bull purchased in with them all. Rancher Randy keeps the top 40% of the female progeny as replacement females. Non-replacement females and all steer progeny will be sent to a feedlot in western Kansas where ownership will be retained, fed out and ultimately marketed for a potential premium on a Certified Hereford Beef (CHB) grid. The CHB grid pays a premium for high cutability cattle that grade select or better. Feed resources are marginal given the fact Rancher Randy only has one field to keep the cattle in and depending on the weather can cause stress from a feed standpoint. Randy is like any rancher in the sense that he wants the bull he purchases to add value to his calf crop but doesn't want to break the bank to buy him. Please answer the 10 questions below as a team regarding the bulls and Randy's decision. Additionally, you will need to discuss your choice of bull for Randy with the contest official. Please explain in depth why you ultimately chose the bull.

[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	CED	WW	YW	Milk	Marbling	REA	BMI	Price
1	+3.4	68	104	23	+.20	+.68	390	$3,000
2	+3.4	68	104	23	+.20	+.68	390	$3,500
3	+0.8	59	89	28	+.24	+.48	306	$1,200
4	+1.3	56	84	29	+.08	+.58	340	$1,850
5	-2.1	65	100	32	+.19	+.54	300	$2,800
Breed Average	+2.6	53	85	25	+.10	+.38	351	

BMI = Baldy Maternal Index

OVER

1. Which bull should have the calves who require the most assistance at birth?

   1 2 3 4 5

2. Which bull's progeny should have the greatest chance to roll into a choice like grade?

   1 2 3 4 5

3. Which bull's female progeny would you be most hesitant in retaining within the herd?

   1 2 3 4 5

4. Which bull has the most concerns structurally speaking?

   1 2 3 4 5

5. Between 1 and 2 which bull offers more foot and bone?

   1 2

6. Of the bulls ranging from $2,800 – $3,500, which bull is branded?

   1 2 3 4 5

7. How many bulls are potential siblings?

   0 1 2 3 4 5

8. Of the dark red bulls which bull is plain fronted, round hip and off balanced?

   1 2 3 4 5

9. Which bull offers value on paper and combines this with a phenotype that lends himself towards the production of soft bodied, moderate, good structured females?

   1 2 3 4 5

10. Which bull should have the slowest growing calves?

    1 2 3 4 5

#1

#2

#3

#4

#5

VFD-Required #1

Product Number – 3006216-501, 3006216-506
Formula Number – 375K

Accuration® Starter Complete WC AS46.6 Text

Specie: Beef Type of Feed: Complete Form of Feed: Textured

General Description: Utilizing RX3™ Immune Support Technology, Intake Modifying Technology™ and fed as the sole ration, Accuration® Starter Complete Weaning Calves (WC) is a complete, coarse-textured feed designed with roughage for weaning calves (450-600 lbs.).

PURINA® ACCURATION® STARTER CP WC AS46.6 TEXTURED

TYPE C MEDICATED FEED

VFD Required

COMPLETE FEED FOR STARTER FEEDLOT CATTLE

As an aid in the maintenance of weight gains in the presence of respiratory disease such as shipping fever.

ACTIVE DRUG INGREDIENT

Chlortetracycline ..... 46.60 g/ton
Sulfamethazine ..... 46.60 g/ton (0.0051 %)

GUARANTEED ANALYSIS

Crude Protein, (Min) ..... 14.00 %
(This includes not more than 2.30% equivalent crude protein from non-protein nitrogen.)
Crude Fat, (Min) ..... 3.00 %
Crude Fiber, (Max) ..... 20.00 %
Calcium (Ca), (Min) ..... 0.50 %
Calcium (Ca), (Max) ..... 1.00 %
Phosphorus (P), (Min) ..... 0.50 %
Salt (NaCl), (Min) ..... 0.25 %
Salt (NaCl), (Min) ..... 0.75 %
Vitamin A, I.U./lb, (Min) 1,700

INGREDIENTS

Note: ingredients differ by manufacturing plant

Grain Products, Roughage Products, Plant Protein Products, Processed Grain By-Products, Molasses Products, Calcium Carbonate, Fish Oil, Forage Products, Urea, Salt, Dicalcium Phosphate, Monocalcium Phosphate, Mono Ammonium Phosphate, Ammonium Sulfate, Potassium Chloride, Vegetable Oil, Thiamine Mononitrate, Silicon Dioxide, Artificial Flavor, Yeast Extract, Saccharin Sodium, Glycyrrhizin Ammoniated, Sodium Silico Aluminate, Vitamin A Supplement, Chromium Propionate, Calcium Chloride, Propionic Acid (a Preservative), Propylene Glycol, Vitamin D3 Supplement, Mineral Oil, Dried Enterococcus lactis Fermentation Product, Zinc Sulfate, Dried Bacillus licheniformis Fermentation Product, Dried Bacillus subtilis Fermentation Product, Lecithin, Glyceryl Monostearate, Colored with Iron Oxide, Vitamin E Supplement, Choline Chloride, Olive Oil, Zinc Amino Acid Complex, Manganese Amino Acid Complex, Calcium Stearate, Copper Amino Acid Complex, Inositol, Cobalt Carbonate, Cobalt Glucoheptonate, Manganese Sulfate, Ethylenediamine Dihydroiodide, Sodium Selenite, Basic Copper Chloride.

DIRECTIONS:

Feed at a rate of 15 pounds to provide 350 mg Chlortetracycline and 350 mg Sulfamethazine per head per day. 15 lbs. of this cattle feed will medicate one animal.

WARNING:

Withdraw 7 days prior to slaughter. A withdrawal period has not been established for this product in pre-ruminating calves. Do not use in calves to be processed for veal. DO NOT FEED TO SHEEP DUE TO HIGH LEVELS OF SUPPLEMENTAL COPPER. Store in a dry, well-ventilated area protected from rodents and insects. Do not feed moldy or insect-infested feed to animals as it may cause illness, performance loss or death. USE ONLY AS DIRECTED.

Available Options:

Product No.	Package	Size Diameter	Feeding Rate
3006216-501	Bulk	Coarse-Textured	15 lbs./hd./day
3006216-506	50# Bag	Coarse-Textured	15 lbs./hd./day

Product Features:	Product Benefits:
Complete feed with roughage	Palatable feed that provides all nutrients required in rations for starting calves that supports optimal feed intake and gains and improves transition to growing and finishing rations No added roughage required
Intake Modifying Technology™	Formulated to regulate the number and size of meals consumed, which optimizes feed efficiency and aids in the reduction of digestive and metabolic challenges in starting cattle
Stimulate intake and rumen function	Proper nourishment of calves to support microbial protein production and rumen fermentation
RX3™ Immune Support Technology	Precise blend of prebiotics, probiotics and plant extracts to help aid calves in the fight against respiratory challenges
Availa® 4	Rapidly restores trace mineral levels to jump-start the immune system of nutritionally challenged, stressed cattle
Chlortetracycline & Sulfamethazine	Aids in the maintenance of weight gains in the presence of respiratory disease such as shipping fever

*This product requires a veterinary feed directive (VFD) issued by a licensed veterinarian and will be subject to the following restriction: Federal law restricts medicated feed containing this veterinary feed directive drug to use by or on the order of a licensed veterinarian.

RX3™ Immune Support Technology Influences the Innate Immune System to Prepare a Calf's Natural Defense to Optimize the Response to Stress and Respiratory Disease Challenges

Our studies show calves fed Purina® starters with RX3™ Immune Support Technology:

- Gained, on average 6 pounds more than the control group within a 30-day period
- Had less variation in average daily gain compared to control calves
- Had half the morbidity and number of calves treated 1x when compared with control group

RX3™ Immune Support Technology		
RECOGNIZE	**RESPOND**	**RECOVER**
Immune System is primed and ready to recognize pathogens	Immune system elicits response to eliminate pathogens	Supports faster return to optimal health

IMPORTANT:

Follow these management practices:

1. Do not allow animals to run out of feed.
2. Feeders/bunks should be well protected and managed to prevent accumulation of fines and wet, moldy feed.
3. When making a ration change, allow 7 to 10 days for animals to adjust to the new ration.
4. Provide adequate feeder space for each animal.
5. Stressed cattle should be placed in clean, uncrowded environments.
6. Provide salt free choice if needed.
7. Provide fresh, clean water near the feeding area.

In groups of cattle, there are certain animals that experience chronic bloat or other digestive disturbances and consequently, are poor performers. In addition, excess feed consumption, severe weather changes resulting in erratic feed consumption, and poorly managed feeding practices can increase the incidence of bloat in all cattle. If bloat occurs, please review feed management practices.

#2

Product Number – **3006279-901, 3006279-906, 3006279-201, 3006279-206**
Formula Number – **377V**

Stress Care® 5

Specie: Beef **Type of Feed:** Supplement **Form of Feed:** Pellet

General Description: Stress Care® 5 is a 22% protein pellet, semi-complete feed with RX3™ Immune Support Technology designed to be fed at 5 pounds per day to starting cattle along with hay or grass to support intake and get calves eating quickly.

PURINA®

STRESS CARE® 5

SUPPLEMENT FEED FOR STARTER FEEDLOT CATTLE

GUARANTEED ANALYSIS

Crude Protein, (Min).....22.00 %
(This includes not more than 4.00% equivalent crude protein from non-protein nitrogen).
Crude Fat, (Min).....2.00 %
Crude Fiber, (Max).....10.00 %
Calcium (Ca), (Min).....1.00 %
Calcium (Ca), (Max).....1.50 %
Phosphorus (P), (Min).....1.00 %
Salt (NaCl), (Min).....1.00 %
Salt (NaCl), (Max).....1.50 %
Potassium (K), (Min).....1.50 %
Vitamin A, I.U./lb, (Min) 10000

INGREDIENTS

Note: ingredients differ by manufacturing plant

Processed Grain By-Products, Roughage Products, Plant Protein Products, Grain Products, Calcium Carbonate, Molasses Products, Urea, Salt, Potassium Chloride, Dicalcium Phosphate, Monocalcium Phosphate, Lignin Sulfonate, Vegetable Oil, Silicon Dioxide, Artificial Flavor, Yeast Extract, Saccharin Sodium, Natural and Artificial Flavors, Glycyrrhizin Ammoniated, Sodium Silico Aluminate, Vitamin E Supplement, Chromium Propionate, Propionic Acid (a Preservative), Propylene Glycol, Mineral Oil, Dried Enterococcus lactis Fermentation Product, Dried Bacillus licheniformis Fermentation Product, Zinc Sulfate, Dried Bacillus subtilis Fermentation Product, Vitamin A Supplement, Zinc Amino Acid Complex, Manganese Amino Acid Complex, Copper Amino Acid Complex, Cobalt Carbonate, Cobalt Glucoheptonate, Manganese Sulfate, Ethylenediamine Dihydroiodide, Basic Copper Chloride, Vitamin D3 Supplement, Sodium Selenite.

DIRECTIONS:

Feed 5 pounds (1 % of bodyweight) per head daily along with good quality forage to weaning and receiving cattle.

CAUTION:

DO NOT FEED TO SHEEP DUE TO HIGH LEVELS OF SUPPLEMENTAL COPPER. Store in a dry, well-ventilated area protected from rodents and insects. Do not feed moldy or insect-infested feed to animals as it may cause illness, performance loss or death. This product was made in a feed manufacturing facility that does not handle or store products containing animal proteins prohibited in ruminant feed. USE ONLY AS DIRECTED.

Available Options:

Product No.	Package	Form	Feeding Rate
3006279-206	Bag	1/4"	5 lbs. or 1 % of BW
3006279-201	Bulk	1/4"	5 lbs. or 1 % of BW
3006279-906	Bag	5/32-11/64"	5 lbs. or 1 % of BW
3006279-901	Bulk	5/32-11/64"	5 lbs. or 1 % of BW

*Medicated feed options are available. See individual product pages.

Product Features:	Product Benefits:
Pellet containing protein, vitamins, and minerals	Formulated to provide the correct balance of nutrients required for starting calves to encourage intake, health and weight gains
Palatable	Encourages calves just weaned off cow and/or stressed during transportation to begin to eat dry feed and recover from the stresses of weaning and shipping
Availa® 4	Rapidly restores trace mineral levels to support the immune system of nutritionally challenged, stressed cattle
RX3™ Immune Support Technology	Precise blend of prebiotics, probiotics and plant extracts to help aid calves in the fight against respiratory challenges
Drug options available	Support health challenges related to the stresses of weaning and shipping

RX3™ Immune Support Technology Influences the Innate Immune System to Prepare a Calf's Natural Defense to Optimize the Response to Stress and Respiratory Disease Challenges

Our studies show calves fed Purina® starters with RX3™ Immune Support Technology:

- Gained, on average 6 pounds more than the control group within a 30-day period
- Had less variation in average daily gain compared to control calves
- Had half the morbidity and number of calves treated 1x when compared with control group

RX3™ Immune Support Technology		
RECOGNIZE	**RESPOND**	**RECOVER**
Immune System is primed and ready to recognize pathogens	Immune system elicits response to eliminate pathogens	Supports faster return to optimal health

IMPORTANT:

Follow these management practices:

1. Do not allow animals to run out of feed.
2. Feeders/bunks should be well protected and managed to prevent accumulation of fines and wet, moldy feed.
3. When making a ration change, allow 7-10 days for animals to adjust to the new ration.
4. Provide adequate feeder space for each animal.
5. Stressed cattle should be placed in clean, uncrowded environments.
6. Provide salt free choice if needed.
7. Provide fresh, clean water near the feeding area.

In groups of cattle, there are certain animals that experience chronic bloat or other digestive disturbances and consequently, are poor performers. In addition, excess feed consumption, severe weather changes resulting in erratic feed consumption and poorly managed feeding practices can increase the incidence of bloat in all cattle. If bloat occurs, please review feed management practices.

#3

Product Number – 3006237-206, 3006237-201
Formula Number – 376C

PRECON® COMPLETE

Specie: Beef | Type of Feed: Complete | Form of Feed: Pellet

General Description: Precon® Complete Feed with RX3 Immune Support Technology™ is a complete pelleted ration for preconditioning calves on farm or receiving calves in backgrounding operations or feedlots.

PURINA® PRECON® COMPLETE

COMPLETE FEED FOR STARTER FEEDLOT CATTLE

GUARANTEED ANALYSIS

Crude Protein, (Min)	**12.00 %**
(This includes not more than 2.00% equivalent crude protein from non-protein nitrogen).	
Crude Fat, (Min)	**1.00 %**
Crude Fiber, (Max)	**26.00 %**
Calcium (Ca), (Min)	**0.45 %**
Calcium (Ca), (Max)	**0.95 %**
Phosphorus (P), (Min)	**0.40 %**
Salt (NaCl), (Min)	**0.25 %**
Salt (NaCl), (Max)	**0.75 %**
Potassium (K), (Min)	**1.10 %**
Vitamin A, I.U./lb, (Min)	**5000**

INGREDIENTS

Note: ingredients differ by manufacturing plant

Roughage Products, Processed Grain By-Products, Grain Products, Plant Protein Products, Molasses Products, Forage Products, Calcium Carbonate, Lignin Sulfonate, Urea, Salt, Potassium Chloride, Dicalcium Phosphate, Monocalcium Phosphate, Vegetable Oil, Silicon Dioxide, Artificial Flavor, Yeast Extract, Saccharin Sodium, Glycyrrhizin Ammoniated, Sodium Selenite, Sodium Silico Aluminate, Chromium Propionate, Propionic Acid (a Preservative), Propylene Glycol, Zinc Sulfate, Mineral Oil, Dried Enterococcus lactis Fermentation Product, Dried Bacillus licheniformis Fermentation Product, Dried Bacillus subtilis Fermentation Product, Vitamin A Supplement, Zinc Amino Acid Complex, Manganese Amino Acid Complex, Copper Amino Acid Complex, Cobalt Carbonate, Manganese Sulfate, Cobalt Glucoheptonate, Ethylenediamine Dihydroiodide, Basic Copper Chloride.

DIRECTIONS:

Initially, feed this product at a minimum of 1.5% of body weight and gradually increase the feed rate to 3% of body weight. For example, a 500-pound calf would initially receive a minimum of 7.5 pounds per head per day and gradually increase up to 15 pounds per head per day. Consult your local Purina® representative for additional information on how to start cattle on feed.

CAUTION:

DO NOT FEED TO SHEEP DUE TO HIGH LEVELS OF SUPPLEMENTAL COPPER. Store in a dry, well-ventilated area protected from rodents and insects. Do not feed moldy or insect-infested feed to animals as it may cause illness, performance loss or death. USE ONLY AS DIRECTED.

Available Options:

Product No.	Package	Form	Feeding Rate
3006237-206	50# Bag	1/4" Pellet	10 to 15 lbs./hd./day
3006237-201	Bulk	1/4" Pellet	10 to 15 lbs./hd./day

Product Features:	Product Benefits:
Pellet containing proteins, vitamins and minerals	Formulated to provide the correct balance of nutrients required for starting calves to encourage intake, health, and weight gains
Palatable	Encourages calves just weaned off cow and/or stressed during transportation to begin to eat dry feed and recover from the stresses of weaning and shipping
RX3™ Immune Support Technology	Precise blend of prebiotics, probiotics and plant extracts to help aid calves in the fight against respiratory challenges
Complete feed with adequate roughage	Provides adequate roughage for starting cattle without additional forage
Availa®4	Bioavailable source of Zinc, Manganese, Copper and Cobalt rapidly restores trace mineral levels to support the immune system of nutritionally challenged, stressed cattle
Drug options available	For health challenges related to the stresses of weaning and shipping

RX3™ Immune Support Technology Influences the Innate Immune System to Prepare a Calf's Natural Defense to Optimize the Response to Stress and Respiratory Disease Challenges

Our studies show calves fed Purina® starters with RX3™ Immune Support Technology:

- Gained, on average 6 pounds more than the control group within a 30-day period
- Had less variation in average daily gain compared to control calves
- Had half the morbidity and number of calves treated 1x when compared with control group

RX3™ Immune Support Technology		
RECOGNIZE	**RESPOND**	**RECOVER**
Immune System is primed and ready to recognize pathogens	Immune system elicits response to eliminate pathogens	Supports faster return to optimal health

IMPORTANT:

Follow these management practices:

1. Do not allow animals to run out of feed.
2. Feeders/bunks should be well protected and managed to prevent accumulation of fines and wet, moldy feed.
3. When making a ration change, allow 7 to 10 days for animals to adjust to the new ration.
4. Provide adequate feeder space for each animal.
5. Stressed cattle should be placed in clean, uncrowded environments.
6. Provide mineral and salt free choice.
7. Provide fresh, clean water near the feeding area.

In groups of cattle, there are certain animals that experience chronic bloat or other digestive disturbances and consequently, are poor performers. In addition, excess feed consumption, severe weather changes resulting in erratic feed consumption and poorly managed feeding practices can increase the incidence of bloat in all cattle. If bloat occurs, please review feed management practices.

#4

Product Number – **0004910**
Formula Number – **3400**

Accuration® Grass-Stretcher 400

Specie: Beef **Type of Feed:** Supplement **Form of Feed:** Meal

General Description:

A non-salt limiting supplement when fed according to recommendations balances the nutritional deficiencies in fair-quality forages (native or improved grass hay) or poor-quality forage (dormant grasses or crop residues). Designed for cows, heifer development, growing stockers or yearlings, bull conditioning prior to breeding, bull development and even creep feeding.

PURINA®

ACCURATION® GRASS-STRETCHER 400

SUPPLEMENT FEED FOR CATTLE ON PASTURE

CAUTION: FEED AS DIRECTED

GUARANTEED ANALYSIS

Crude Protein, (Min)	**12.00 %**
(This includes not more than 2.00% equivalent crude protein from non-protein nitrogen).	
Crude Fat, (Min)	**3.00 %**
Crude Fiber, (Max)	**5.00 %**
Calcium (Ca), (Min)	**0.80 %**
Phosphorus (P), (Min)	**0.50 %**
Salt (NaCl), (Min)	**1.25 %**
Potassium (K), (Min)	**0.30 %**
Copper (Cu),. ppm, (Min)	**13**
Selenium (Se), ppm, (Min)	**0.3**
Zinc (Zn), ppm (Min)	**43.75**
Vitamin A, I.U./lb, (Min)	**7500**
Vitamin D, I.U./lb, (Min)	**1000**
Vitamin E, I.U./lb, (Min)	**5**

INGREDIENTS

Note: ingredients differ by manufacturing plant

Grain Products, Processed Grain By-Products, Calcium Carbonate, Fish Oil, Salt, Mono Ammonium Phosphate, Ammonium Sulfate, Urea, Plant Protein Products, Monocalcium Phosphate, Dicalcium Phosphate, Ethoxyquin (a Preservative), Vitamin D3 Supplement, Vitamin A Supplement, Vitamin E Supplement, Cobalt Carbonate, Manganese Sulfate, Ethylenediamine Dihydroiodide, Zinc Sulfate, Basic Copper Chloride, Sodium Selenite.

FEEDING DIRECTIONS:

Feed this product free choice to cattle consuming adequate quantities of forage. This product is formulated to limit consumption so that cattle will not overeat. It is designed so that cattle will not receive more than 1/3 of their total protein from non-protein nitrogen. Stocker and yearling cattle should not consume more than 1% body weight of this product. This is not a complete feed.

CAUTION:

Store in a dry, well-ventilated area protected from rodents and insects. Do not feed moldy or infested feed to animals as it may cause illness, performance loss or death.

Available Options:

Product No.	Package	Size Diameter	Feeding Rate
0004910	Bulk	Meal	See feeding directions above
0065055	Tote	Meal	See feeding directions above

Product Features:	Product Benefits:
Intake Modifying Technology™	Optimizes the flow of nutrients to the digestive system, thereby increasing forage intake, overall utilization of nutrients and cattle performance
Convenience & Peace of Mind	Over 30 years of Purina research has gone into the formulation of Accuration® so that it will dependably control intake based on forage quality and the cattle's nutritional requirements, providing the cattle with the nutrition they need every day
Forage Utilization	Our research shows a 15-20% increase in grazing time and forage intake for cattle on Accuration® when compared with a conventional hand-fed supplement, thus, effectively utilizing your greatest resource – your grass or hay
Predictable Performance	Because Accuration intake is driven by forage quality and cattle requirements, cattle will consume it to provide the nutrition they need when things such a forage quality, weather, stress, and the stage of product changes – bottom line: intake changes, but performance stays consistent

IMPORTANT:

This product is to be fed only to the animal species as directed on this label. Follow these management practices:

1. When this product is manufactured in the bulk meal form it is recommended that it be stored in flat storage.
2. When making a ration change, allow 7-10 days for animals to adjust to the new ration.
3. Provide adequate feeder space for each animal. Feeders should be well protected and well managed to prevent feed from becoming wet and molding. Do not allow fines to accumulate in feed trough. Never allow the feeder to run empty or to develop flow problems.
4. Consumption of this grain mix will vary according to location of the feeder, forage quality and quantity, as well as the age and weight of the animal.
5. Position the feeder with the grain mix away from loafing areas (i.e., water, hay or sheltered areas) to reduce the consumption of the mixed feed, closer to loafing areas to increase the consumption of the mixed feed.
6. Poorer quality forage will increase intake of the grain mix, while better quality forage will decrease its intake. Likewise, limited quantities of forage will increase intake of the grain mix, while unlimited quantities of forage tend to decrease its intake.
7. Never feed moldy or spoiled feeds, including hay and haylages or silages.
8. Do not provide starved cattle free access to the grain mix.
9. Provide mineral and salt free choice.
10. Provide fresh, clean water near the feeding area.

Senior Team Feeding Activity Exercise – 2021 KEY County/County Team #:_____

Team Members_____

Your team is consultants for a cow/calf producer in eastern Kentucky. The commercial cow/calf producer is looking to precondition his weaned calves for 60 days. At the conclusion of the 60 day mark, he plans to market his 200 head of steer/heifer calves private treaty to an order buyer in central Kentucky. The producer's objective is to add value by having the calves healthy, in good growing condition, and active eaters. The other advantage the producer wishes to market the calves by is their calm disposition as he has them fed bunk "broke". The producer has them confined in a dry lot with access to subpar 1st cutting hay (the hay was rained on several times). Ultimately, the producer is not looking for huge gains, more so to have the calves in the right condition to grow. Please rank the feeds (based off of the 4 feed product information sheets provided below) in the order that would best compliment the producer's goals. Additionally, please answer the 10 questions below. *(Ranking the feed correctly is worth 50 points. The 10 questions are worth 15 points each for a total of 150 points worth a 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?**

   Accuration Starter Complete | Stress Care 5 | Precon Complete | Accuration Grass-Stretcher 400 | None

2. **Which feed could be fed to sheep?**

   Accuration Starter Complete | Stress Care 5 | Precon Complete | Accuration Grass-Stretcher 400 | None

3. **Which feed requires a VFD?**

   Accuration Starter Complete | Stress Care 5 | Precon Complete | Accuration Grass-Stretcher 400 | None

4. **What does VFD stand for?**

   Veterinary Feed Drug | Veterinary Feed Directive | Veterinary Food Directive | None of the above

OVER

5. **Which feed offers the most protein?**

Accuration Starter Complete | Stress Care 5 | Precon Complete | Accuration Grass-Stretcher 400

6. **Which feed has a withdraw date associated with it?**

Accuration Starter Complete | Stress Care 5 | Precon Complete | Accuration Grass-Stretcher 400 | None

7. **Which feed has the lowest amount of fat?**

Accuration Starter Complete | Stress Care 5 | Precon Complete | Accuration Grass-Stretcher 400 | None

8. **Which feed lists roughage products as their first ingredient?**

Accuration Starter Complete | Stress Care 5 | Precon Complete | Accuration Grass-Stretcher 400 | None

9. **Which feed could you have in the form of 1/4" pellet or 5/32-11/64" pellet?**

Accuration Starter Complete | Stress Care 5 | Precon Complete | Accuration Grass-Stretcher 400 | None

10. **Which feed should be fed at free choice?**

Accuration Starter Complete | Stress Care 5 | Precon Complete | Accuration Grass-Stretcher 400 | None

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

County/County Team #_____**KEY**_____

Team Members _____

_____

Senior Team Quality Assurance Exercise – 2021

You and your team are the owner/operators of Big Time Cattle Company (BTCC). BTCC has 200 head of purebred Angus cows. Your team is tired from the cold winter months and calving out cows from December through the end of March. Now that calving season is over, you and your team decide it is time for some changes around BTCC. Your main objective is to tighten the calving season so that you can focus time and energy on calving out cows during a shorter window. Ultimately you want to have a more uniform group of calves as well. Your team heard a talk about the advantages associated with a breeding synchronization protocol. Your team goal for this exercise is to identify the breeding protocol that would best suit the needs of BTCC. You are to use the three (3) medication inserts provided, along with the breeding protocol sheet to answer the questions below and provide an oral explanation to the official on what breeding protocol would work best for BTCC. A calendar is provided for your use as well. (Each answer is worth 10 points each for a total of 100 points, and the oral explanation to the official is worth 100 points. Total points for exercise=200)

Points of consideration for BTCC:

- Cows are to be bred 1 time by artificial insemination, then a bull is turned out for 1 heat cycle
- Heifers are bred by a calving ease bull. Bull is turned out at the same time as breeding starts for mature cows. Heifers are exposed to the bull for 1 heat cycle.
- Labor is abundant during breeding season and during calving season. The primary objective is to tighten the calving window and to "catch" as many cows as possible via artificial insemination. BTCC is committed to shortening the calving window and obtaining a uniform set of calves.
- Working pens/chutes are top of the line and fully functioning.
- Team members are proficient at determining which cows are in heat, but are not comfortable in their ability to A.I.
- The A.I. technician that BTCC is using, is not available on Saturday or Sunday.
- BTCC wants to start calving at the beginning of January.

Notes on products:

- 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

OVER

1. **Which product contains progesterone? __EAZI-BREED CIDR_____**
2. **Which product contains gonadorelin (GnRH)? __Cystorelin_____**
3. **Which product contains Prostaglandin F2alpha? _____Lutalyse_____**
4. **Which product is marketed by Merial? ____Cystorelin_____**
5. **Using a Eazi-Breed Cidr Cattle insert longer than ____7___ days may result in infertility.**
6. **Are Eazi-Breed Cidr's labeled for multiple uses? _____NO_____**
7. **Which product could help treat cystic ovaries? _____Cystorelin_____**
8. **Which product should people with bronchial/other respiratory problems use with extreme caution? __Lutalyse_____**
9. **True or False: You can buy Lutalyse in a 100 mL vial? ____True_____**
10. **True or False: Lutalyse can be used to abort cattle? _____True_____**

Official use only below this line:

Question Score: _____/100	**Oral Score: _____/100**

CYSTORELIN®
(gonadorelin)

By Merial

For treatment of cystic ovaries in dairy cattle

For use with cloprostenol sodium to synchronize estrous cycles to allow for fixed time artificial insemination (FTAI) in lactating dairy cows and beef cows.

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

DESCRIPTION:
CYSTORELIN® is a sterile solution containing 43 mcg/mL of gonadorelin (GnRH) as 50 mcg/mL gonadorelin diacetate tetrahydrate suitable for intramuscular or intravenous administration according to the indication. Gonadorelin is a decapeptide composed of the sequence of amino acids—

5-oxoPro-His-Trp-Ser-Tyr-Gly-Leu-Arg-Pro-Gly-NH2—

a molecular weight of 1182.32 and empirical formula $C_{55}H_{75}N_{17}O_{13}$. The diacetate tetrahydrate ester has a molecular weight of 1374.48 and empirical formula $C_{59}H_{91}N_{17}O_{21}$.

Each mL of CYSTORELIN contains:

Gonadorelin diacetate tetrahydrate (equivalent to 43 mcg gonadorelin)	50 mcg
Benzyl Alcohol	9 mg
Sodium Chloride	7.47 mg
Water for Injection	q.s.

pH adjusted with potassium phosphate (monobasic and dibasic).

Gonadorelin is the hypothalamic releasing factor responsible for the release of gonadotropins (e.g., luteinizing hormone [LH], follicle stimulating hormone [FSH]) from the anterior pituitary. Synthetic gonadorelin is physiologically and chemically identical to the endogenous bovine hypothalamic releasing factor.

INDICATIONS FOR USE:
Cystic Ovaries
CYSTORELIN is indicated for the treatment of ovarian follicular cysts in dairy cattle. Ovarian cysts are non-ovulated follicles with incomplete luteinization which result in nymphomania or irregular estrus. Historically, cystic ovaries have responded to an exogenous source of LH such as human chorionic gonadotrophin. CYSTORELIN initiates release of endogenous LH to cause ovulation and luteinization.

Reproductive Synchrony
CYSTORELIN is indicated for use with cloprostenol sodium to synchronize estrous cycles to allow for fixed time artificial insemination (FTAI) in lactating dairy cows and beef cows.

DOSAGE AND ADMINISTRATION:
Cystic Ovaries
The intravenous or intramuscular dosage of CYSTORELIN is 100 mcg gonadorelin diacetate tetrahydrate (2 mL) per cow.

Reproductive Synchrony
The intramuscular dosage of CYSTORELIN is 100 mcg gonadorelin diacetate tetrahydrate (2 mL) per cow, used in reproductive synchrony programs similar to the following:

1. Administer the first CYSTORELIN injection (2 mL) at Time 0.
2. Administer 500 mcg cloprostenol (as cloprostenol sodium) by intramuscular injection 6 to 8 days after the first CYSTORELIN injection.
3. Administer the second CYSTORELIN injection (2 mL) 30 to 72 hours after the cloprostenol sodium injection.
4. Perform FTAI 0 to 24 hours after the second CYSTORELIN injection, or inseminate cows on detected estrus using standard herd practices.

WARNINGS AND PRECAUTIONS:
Not for use in humans.
Keep out of reach of children.

WITHDRAWAL PERIODS:
No withdrawal period or milk discard time is required when used according to the labeling.

The Safety Data Sheet (SDS) contains more detailed occupational safety information. To obtain a SDS or for technical assistance, contact Merial at 1-888-637-4251. To report suspected adverse drug experiences, contact Merial at 1-888-637-4251. For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS, or http://www.fda.gov/AnimalVeterinary.

PHARMACOLOGY AND TOXICOLOGY:
Endogenous gonadorelin is synthesized and/or released from the hypothalamus during various stages of the bovine estrus cycle following appropriate neurogenic stimuli. It passes via the hypophyseal portal vessels, to the anterior pituitary to effect the release of gonadotropins (e.g., LH, FSH). Synthetic gonadorelin administered intravenously or intramuscularly also causes the release of endogenous LH or FSH from the anterior pituitary.

Gonadorelin diacetate tetrahydrate has been shown to be safe. The LD50 for mice and rats is greater than 60 mg/kg, and for dogs, greater than 600 mcg/kg, respectively. No adverse effects were noted among rats or dogs administered 120 mcg/kg/day or 72 mcg/kg/day intravenously for 15 days.

It had no adverse effects on heart rate, blood pressure, or EKG to unanesthetized dogs at 60 mcg/kg. In anesthetized dogs it did not produce depression of myocardial or system hemodynamics or adversely affect coronary oxygen supply or myocardial oxygen requirements.

The intravenous administration of 60 mcg/kg/day of gonadorelin diacetate tetrahydrate to pregnant rats and rabbits during organogenesis did not cause embryotoxic or teratogenic effects. Further, CYSTORELIN did not cause irritation at the site of intramuscular administration in dogs with a dose of 72 mcg/kg/day administered for seven (7) days.

TARGET ANIMAL SAFETY:
In addition to the animal safety information presented in the PHARMACOLOGY AND TOXICOLOGY section, the safety of CYSTORELIN was established through the review and evaluation of the extensive published literature available for the use of gonadorelin-containing products.

The intramuscular administration of 1000 mcg gonadorelin diacetate tetrahydrate on five (5) consecutive days to normally cycling dairy cattle had no effect on hematology or clinical chemistries.

In field studies evaluating the effectiveness of CYSTORELIN for the treatment of ovarian follicular cysts, the incidence of health abnormalities was not significantly greater in cows administered CYSTORELIN than cows administered a placebo injection.

The target animal safety of, and injection site reactions to, gonadorelin when used with cloprostenol sodium were evaluated during the conduct of effectiveness field studies. The incidence of health abnormalities was not significantly greater in cows administered gonadorelin than cows administered a placebo injection.

EFFECTIVENESS:
The use of CYSTORELIN for treatment of ovarian follicular cysts in dairy cattle was demonstrated to be effective with a treatment dose of 100 mcg gonadorelin diacetate tetrahydrate. The effectiveness of gonadorelin for use with cloprostenol sodium to synchronize estrous cycles to allow for FTAI in lactating dairy cows was demonstrated in a field study at 10 different locations in the U.S. Four of the locations represented conditions that would typically cause heat stress in lactating cows. A total of 1607 healthy, non-pregnant, primiparous or multiparous lactating dairy cows within 40-150 days postpartum were enrolled in the study. A total of 805 cows were administered gonadorelin (1 mL; 100 mcg gonadorelin as the acetate salt) and 802 cows were administered an equivalent volume of water for injection as an intramuscular injection twice in the following regimen:
Day 0: 100mcg gonadorelin (as the acetate salt) or sterile water for injection
Day 7: 500 mcg cloprostenol (as cloprostenol sodium)
Day 9: 100mcg gonadorelin (as the acetate salt) or sterile water for injection

Fixed time AI was performed on Day 10, approximately 11 - 31 hours after the Day 9 injection. Cows were evaluated for pregnancy on Day 45 ± 5 days by trans-rectal ultrasound or rectal palpation. Pregnancy rate to FTAI was significantly higher ($P < 0.0001$) in cows treated with gonadorelin (33.4%) than the pregnancy rate to FTAI in cows treated with water (13.6%). The environmental condition (heat stress or not heat stress) did not affect the conclusion of effectiveness. The effectiveness of gonadorelin for use with cloprostenol sodium to synchronize estrous cycles to allow for FTAI in beef cows was demonstrated in a field study at 10 different locations in the U.S. A total of 706 healthy, non-pregnant, primiparous or multiparous beef cows within 40-150 days postpartum were enrolled in the study. A total of 364 cows were administered gonadorelin (1 mL; 100 mcg gonadorelin as the acetate salt) and 342 cows were administered an equivalent volume of water for injection as an intramuscular injection twice in the following regimen:
Day 0: 100mcg gonadorelin (as the acetate salt) or sterile water for injection
Day 7: 500 mcg cloprostenol (as cloprostenol sodium)
Day 9: 100mcg gonadorelin (as the acetate salt) or sterile water for injection

Fixed time AI was performed immediately after the Day 9 injection. Cows were evaluated for pregnancy on Day 55 ± 5 days by trans-rectal ultrasound. Pregnancy rate to FTAI was significantly higher ($P = 0.0006$) in cows treated with gonadorelin (21.7%) than the pregnancy rate to FTAI in cows treated with water (7.4%).

The effectiveness of a 2-mL dose of CYSTORELIN delivering 100 mcg gonadorelin diacetate tetrahydrate (86 mcg gonadorelin) for use with cloprostenol sodium to synchronize estrous cycles to allow for FTAI in lactating dairy cows and beef cows was also demonstrated through references to scientific literature.

HOW SUPPLIED:
CYSTORELIN is available in a concentration of 50 mcg/mL gonadorelin diacetate tetrahydrate (43 mcg/mL gonadorelin) pH adjusted with potassium phosphate (monobasic and dibasic).

CYSTORELIN is supplied in multi-dose vials containing 10 mL and 30 mL of sterile solution.

STORAGE, HANDLING, AND DISPOSAL: Store at or below 77°F (25°C). Brief excursions to 86°F (30°C) are permitted. Use within 6 months of first puncture.

NADA 098-379, Approved by FDA

Marketed by:
Merial, Inc.
Duluth, GA 30096-4640 U.S.A.

MERIAL

1050-2907-0A
Rev. 12/2017

EAZI-BREED™ CIDR®

(progesterone intravaginal insert) **Cattle Insert**

Each EAZI-BREED CIDR Cattle Insert contains 1.38 grams of progesterone in molded silicone over a flexible nylon spine. Attached to each EAZI-BREED CIDR Cattle Insert is a polyester tail.

NET CONTENTS

10 EAZI-BREED CIDR Cattle Inserts per bag

Approved by FDA under NADA # 141-200

zoetis

DRUG FACTS

Active Ingredient: Progesterone, 1.38 grams per EAZI-BREED CIDR Cattle Insert

Uses:

- Synchronization of estrus in lactating dairy cows, suckled beef cows, and replacement beef and dairy heifers
- Induction of estrous cycles in anestrous lactating dairy cows
- Synchronization of the return to estrus in lactating dairy cows inseminated at the immediately preceding estrus
- Advancement of first postpartum estrus in suckled beef cows
- Advancement of first pubertal estrus in replacement beef heifers

Removal of the EAZI-BREED CIDR Cattle Insert on treatment Day 7 results in a rapid fall in plasma progesterone levels, which results in the occurrence of estrus in those animals responding to treatment.

WARNINGS:

Withdrawal Periods: Neither a pre-slaughter withdrawal interval nor a milk discard time is required when this product is used according to label directions.

User Safety Warning: Avoid contact with skin by wearing protective gloves when handling the inserts. Not for use in humans. Keep out of reach of children.

Environmental Warning: Store used (removed) EAZI-BREED CIDR Cattle Inserts in a plastic bag or other sealable container until they can be properly disposed in accordance with applicable local, state and Federal regulations.

DO NOT USE:

- An insert more than once. To prevent the potential transmission of venereal and blood born disease the EAZI-BREED CIDR Cattle Insert should be disposed after a single use.
- In beef or dairy heifers of insufficient size or age for breeding or in cattle with abnormal, immature or infected genital tracts.
- In beef cows that are less than 20 days postpartum for synchronization of estrus or advancement of first postpartum estrus because safety and effectiveness have not been evaluated.
- In lactating dairy cows less than 40 days postpartum for synchronization of estrus or synchronization of the return to estrus because safety and effectiveness have not been evaluated.
- In anestrous lactating dairy cows less than 42 days or greater than 78 days postpartum for induction of estrous cycles because safety and effectiveness have not been evaluated.

YOU MAY NOTICE:

- Increased loss of EAZI-BREED CIDR Cattle Inserts in animals housed under crowded conditions, especially in heifers. Avoid crowded conditions during treatment as other cattle, particularly heifers, may remove EAZI-BREED CIDR Cattle Inserts by pulling on the tail of the EAZI-BREED CIDR Cattle Insert. If loss rates are high re-evaluate insertion technique and cattle handling facilities.
- Clear, cloudy, yellow or bloody mucus on the outside of EAZI-BREED CIDR Cattle Insert when removed from animals. The mucus may have an offensive odor. This is a result of irritation to the vaginal lining by the presence of the EAZI-BREED CIDR Cattle Insert, and generally clears between the time of removal and insemination. Such irritation does not affect fertility at inseminations following treatment.
- Use of EAZI-BREED Cattle Insert for periods of longer than 7 days may result in reduced fertility.
- Reduced conception rates to inseminations conducted immediately following removal of the EAZI-BREED CIDR Cattle Insert when used for induction of estrous cycles in anestrous lactating dairy cows. Such reductions in conception rate are not expected to result in reduced pregnancy rates.
- Reduced pregnancy rates to inseminations conducted immediately prior to administration of EAZI-BREED CIDR Cattle Inserts used for synchronizing the return to estrus in lactating dairy cows.

DIRECTIONS:

Lactating Dairy Cows

For Synchronization of Estrus in Lactating Dairy Cows:

- Administer one EAZI-BREED CIDR Cattle Insert per animal and remove 7 days later (for example if administered on a Monday remove the following Monday).
- Administer 5 mL LUTALYSE® Sterile Solution at the time of removal of the EAZI-BREED CIDR Cattle Insert.
- Observe animals for signs of estrus on Days 2 to 5 after removal of the EAZI-BREED CIDR Cattle Insert and inseminate animals found in estrus following typical herd practices.

For Induction of Estrous Cycles in Anestrous Lactating Dairy Cows:

- For induction of estrous cycles in anestrous lactating dairy cows, anestrous dairy cows can be identified using any of the following methods:
  - Cows not observed in estrus since calving.
  - Cows diagnosed twice without a corpus luteum on either ovary via ultrasonography at a 7 to 14 day interval, such as on Day 35 and Day 42 post calving.
  - Cows with low concentration of progesterone in two blood or milk samples collected at a 7 to 14 day interval, such as samples collected on Day 35 and 42 post calving.
- Administer one EAZI-BREED CIDR Cattle Insert per anestrous cow and remove 7 days later (for example if administered on a Monday remove the following Monday).
- If insemination is intended, observe cows on Days 2 to 5 after removal of the EAZI-BREED CIDR Cattle Insert and inseminate animals found in estrus following typical herd practices.

For Synchronization of the Return to Estrus in Lactating Dairy Cows Inseminated at the Immediately Preceding Estrus:

- Administer one EAZI-BREED CIDR Cattle Insert per animal 14±1 days after insemination. Remove EAZI-BREED CIDR Cattle Insert 7 days later (for example, if administered on a Monday remove on the following Monday).
- Observe animals for signs of estrus on Days 1 to 3 after removal of the EAZI-BREED CIDR Cattle Insert and inseminate animals about 12 hours after onset of estrus.
- Note: Do not administer LUTALYSE® Sterile Solution or other prostaglandin products to cows for synchronization of the return to estrus, as this will interrupt pregnancy that may have occurred at the immediately previous insemination.

39006604-04/19

EAZI-BREED™ CIDR® (progesterone intravaginal insert) **Cattle Insert**

(Directions continued)

Suckled Beef Cows, Replacement Beef and Dairy Heifers: For synchronization of estrus in suckled beef cows and replacement beef and dairy heifers, advancement of first postpartum estrus in suckled beef cows, and advancement of first pubertal estrus in beef heifers:

- Administer one EAZI-BREED CIDR Cattle Insert per animal for 7 days (for example, if administered on a Monday remove on the following Monday).
- Inject 5 mL LUTALYSE® Sterile Solution (equivalent to 5 mg/mL dinoprost) 1 day prior to EAZI-BREED CIDR Cattle Insert removal, on Day 6 of the 7 day administration period.
- Observe animals for signs of estrus on Days 1 to 3 after removal of the EAZI-BREED CIDR Cattle Insert and inseminate animals about 12 hours after onset of estrus.

Insertion:

1. Avoid contact with skin by wearing protective gloves when handling inserts.
2. Only use the specially designed EAZI-BREED CIDR Cattle Insert Applicator for administration.
3. Restrain cattle appropriately (head catch, squeeze chute, gate, etc.) prior to administration.
4. Wash the EAZI-BREED CIDR Cattle Insert Applicator in a non-irritating antiseptic solution, and then lubricate the front portion of the EAZI-BREED CIDR Cattle Insert Applicator with a veterinary obstetrical lubricant.
5. Push the flexible tail end of the EAZI-BREED CIDR Cattle Insert into the EAZI-BREED CIDR Cattle Insert Applicator taking care to assure the tail is extending upward through the slot of the EAZI-BREED CIDR Cattle Insert Applicator and is pointed toward the handle.
6. Fold the wings of the EAZI-BREED CIDR Cattle Insert to make it longer and continue to advance the EAZI-BREED CIDR Cattle Insert into the applicator until it is fully seated. When fully seated only the tips of the wings should protrude (one half inch) from the end of the EAZI-BREED CIDR Cattle Insert Applicator (see Figure 1 below).
7. Lubricate the protruding tips of the wings of the EAZI-BREED CIDR Cattle Insert with veterinary obstetrical lubricant.
8. Lift the tail of the animal and clean the exterior of the vulva.
9. Open the lips of the vulva and gently place the loaded EAZI-BREED CIDR Cattle Insert Applicator through the vulva. The slot in the EAZI-BREED CIDR Cattle Insert Applicator should face upwards (see Figure 2 below).
10. Once the loaded EAZI-BREED CIDR Cattle Insert Applicator is past the vulva slope the EAZI-BREED CIDR Cattle Insert Applicator slightly upwards (35-45° angle) by lowering the handle, and then forward, without forcing, until the EAZI-BREED CIDR Cattle Insert Applicator is fully inserted or resistance is felt (see Figure 3 below).
11. Squeeze the finger grips within the handle of the EAZI-BREED CIDR Cattle Insert Applicator to deposit the EAZI-BREED CIDR Cattle Insert in the anterior vagina (see Figure 4 below) and then pull the EAZI-BREED CIDR Cattle Insert Applicator backwards to remove it from the vagina.
12. With the EAZI-BREED CIDR Cattle Insert correctly placed, with the wings open in the anterior portion of the vagina, the tail of the EAZI-BREED CIDR Cattle Insert should be visible, pointing downward from the vulva of the animal. Tails of EAZI-BREED CIDR Cattle Inserts that protrude more than 2.5 inches from the vulva may be clipped to minimize removal by other animals.

Removal:

1. Remove EAZI-BREED CIDR Cattle Inserts by pulling, gently but firmly, on the protruding polyester tail.
2. EAZI-BREED CIDR Cattle Inserts have been reported to reverse direction within the vagina; therefore, if the polyester tail of the insert is not visible on the day of removal, check the vagina to determine if an insert is present.
3. Used (removed) EAZI-BREED CIDR Cattle Inserts still contain some progesterone. Used EAZI-BREED CIDR Cattle Inserts must be stored in a sealable container until disposed. Sealed bag/container with used EAZI-BREED CIDR Cattle Inserts must be properly disposed in accordance with applicable local, state and Federal regulations.

Figure 1

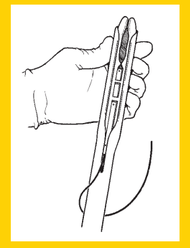


Figure 2

Figure 3

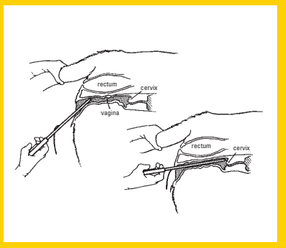


Figure 4

OTHER INFORMATION:

Store at controlled room temperature 20° to 25°C (68° to 77°F) with excursions between 15° to 30°C (59° to 86°F).

To report suspected adverse events, for technical assistance or to obtain a copy of the SDS, contact Zoetis at 1-888-963-8471. For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or http://www.fda.gov/reportanimalae.

Restricted Drug (California) - use only as directed

Distributed by: Zoetis Inc.
Kalamazoo, MI 49007

Lot Number:

Expiration Date:

NN 3 00095 20701 9

Inactive Ingredients: silicone rubber, nylon and polyester.

39006604-04/19

RIA for dinoprost and the 15-keto metabolites. These data support previous reports that dinoprost has a half-life of minutes. Dinoprost is a natural prostaglandin. All systems associated with dinoprost metabolism exist in the body; therefore, no new metabolic, transport, excretory, binding or other systems need be established by the body to metabolize injected dinoprost.

TARGET ANIMAL SAFETY

Laboratory Animals: Dinoprost was non-teratogenic in rats when administered orally at 1.25, 3.2, 10.0 and 20.0 mg dinoprost/kg/day from day 6th-15th of gestation or when administered subcutaneously at 0.5 and 1.0 mg/kg/day on gestation days 6, 7 and 8 or 9, 10 and 11 or 12, 13 and 14. Dinoprost was non-teratogenic in the rabbit when administered either subcutaneously at doses of 0.5 and 1.0 mg dinoprost/kg/day on gestation days 6, 7 and 8 or 9, 10 and 11 or 12, 13 and 14 or 15, 16 and 17 or orally at doses of 0.01, 0.1 and 1.0 mg dinoprost/kg/day on days 6-18 or 5.0 mg/kg/day on days 8-18 of gestation. A slight and marked embryo lethal effect was observed in dams given 1.0 and 5.0 mg dinoprost/kg/day respectively. This was due to the expected luteolytic properties of the drug.

A 14-day continuous intravenous infusion study in rats at 20 mg $PGF_{2\alpha}$ per kg body weight indicated prostaglandins of the F series could induce bone deposition. However, such bone changes were not observed in monkeys similarly administered LUTALYSE Injection at 15 mg dinoprost per kg body weight for 14 days.

Cattle: In cattle, evaluation was made of clinical observations, clinical chemistry, hematology, urinalysis, organ weights, and gross plus microscopic measurements following treatment with various doses up to 250 mg dinoprost administered twice intramuscularly at a 10 day interval or doses of 25 mg administered daily for 10 days. There was no unequivocal effect of dinoprost on the hematology or clinical chemistry parameters measured. Clinically, a slight transitory increase in heart rate was detected. Rectal temperature was elevated about 1.5˚ F through the 6th hour after injection with 250 mg dinoprost, but had returned to baseline at 24 hours after injection. No dinoprost associated gross lesions were detected. There was no evidence of toxicological effects. Thus, dinoprost had a safety factor of **at least 10X** on injection (25 mg luteolytic dose vs. 250 mg safe dose), based on studies conducted with cattle. At luteolytic doses, dinoprost had no effect on progeny. If given to a pregnant cow, it may cause abortion; the dose required for abortion varies considerably with the stage of gestation. Induction of abortion in feedlot cattle at stages of gestation up to 100 days of gestation did not result in dystocia, retained placenta or death of heifers in the field studies. The smallness of the fetus at this early stage of gestation should not lead to complications at abortion. However, induction of parturition or abortion with any exogenous compound may precipitate dystocia, fetal death, retained placenta and/or metritis, especially at latter stages of gestation.

Swine: In pigs, evaluation was made of clinical observations, food consumption, clinical pathologic determinations, body weight changes, urinalysis, organ weights, and gross and microscopic observations following treatment with single doses of 10, 30, 50 and 100 mg dinoprost administered intramuscularly. The results indicated no treatment related effects from dinoprost treatment that were deleterious to the health of the animals or to their offspring.

Mares: Dinoprost tromethamine was administered to adult mares (weighing 320 to 485 kg; 2 to 20 years old), at the rates of 0, 100, 200, 400, and 800 mg per mare per day for 8 days. Route of administration for each dose group was both intramuscularly (2 mares) and subcutaneously (2 mares). Changes were detected in all treated groups for clinical (reduced sensitivity to pain; locomotor incoordination; hypergastromotility; sweating; hyperthermia; labored respiration), blood chemistry (elevated cholesterol, total bilirubin, LDH, and glucose), and hematology (decreased eosinophils; increased hemoglobin, hematocrit, and erythrocytes) measurements. The effects in the 100 mg dose, and to a lesser extent, the 200 mg dose groups were transient in nature, lasting for a few minutes to several hours. Mares did not appear to sustain adverse effects following termination of the side effects.

Mares treated with either 400 mg or 800 mg exhibited more profound symptoms. The excessive hyperstimulation of the gastrointestinal tract caused a protracted diarrhea, slight electrolyte imbalance (decreased sodium and potassium), dehydration, gastrointestinal irritation, and slight liver malfunction (elevated SGOT, SGPT at 800 mg only). Heart rate was increased but pH of the urine was decreased. Other measurements evaluated in the study remained within normal limits. No mortality occurred in any of the groups. No apparent differences were observed between the intramuscular and subcutaneous routes of administration. Luteolytic doses of dinoprost tromethamine are on the order of 5 to 10 mg administered on one day, therefore, LUTALYSE Injection was demonstrated to have a wide margin of safety. Thus, the 100 mg dose gave a safety margin of 10 to 20X for a single injection or 80 to 160X for the 8 daily injections.

Additional studies investigated the effects in the mare of single intramuscular doses of 0, 0.25, 1.0, 2.5, 3.0, 5.0, and 10.0 mg dinoprost tromethamine. Heart rate, respiration rate, rectal temperature, and sweating were measured at 0, 0.25, 0.50, 0.75, 1.0, 1.5, 2.0, 3.0, 4.0, 5.0, and 6.0 hr. after injection. Neither heart rate nor respiration rates were significantly altered ($P > 0.05$) when compared to contemporary control values. Sweating was observed for 0 of 9, 2 of 9, 7 of 9, 9 of 9, and 8 of 9 mares injected with 0.25, 1.0, 2.5, 3.0, 5.0, or 10.0 mg dinoprost tromethamine, respectively. Sweating was temporary in all cases and was mild for doses of 3.0 mg or less but was extensive (beads of sweat over the entire body and dripping) for the 10 mg dose. Sweating after the 5.0 mg dose was intermediate between that seen for mares treated with 3.0 and 10.0 mg. Sweating began within 15 minutes after injection and ceased by 45 to 60 minutes after injection. Rectal temperature was decreased during the interval 0.5 until 1.0, 3 to 4, or 5 hours after injection for 0.25 and 1.0 mg, 2.5 and 3.0, or 5.0 and 10.0 mg dose groups, respectively. Average rectal temperature during the periods of decreased temperature was on the order of 97.5 to 99.6, with the greatest decreases observed in the 10 mg dose group.

EFFECTIVENESS

Cattle:

For Treatment of Pyometra (chronic endometritis) in Cattle: In studies conducted with LUTALYSE Injection, pyometra was defined as presence of a corpus luteum in the ovary and uterine horns containing fluid but not a conceptus based on palpation per rectum. Return to normal was defined as evacuation of fluid and return of the uterine horn size to 40mm or less based on palpation per rectum at 14 and 28 days. Most cattle that recovered in response to LUTALYSE Injection recovered within 14 days after injection. After 14 days, recovery rate of treated cattle was no different than that of non-treated cattle.

For Abortion in Beef Cows, Beef Heifers and Replacement Dairy Heifers: Commercial cattle were palpated per rectum for pregnancy in six feedlots. The percent of pregnant cattle in each feedlot less than 100 days of gestation ranged between 26 and 84; 80% or more of the pregnant cattle were less than 150 days of gestation. The abortion rates following injection of LUTALYSE Injection increased with increasing doses up to about 25 mg. As examples, the abortion rates, over 7 feedlots on the dose titration study, were 22%, 50%, 71%, 90% and 78% for cattle up to 100 days of gestation when injected IM with LUTALYSE Injection doses of 0,1 (5 mg), 2 (10 mg), 4 (20 mg) and 8 (40 mg) mL, respectively. The statistical predicted relative abortion rate based on the dose titration data, was about 93% for the 5 mL (25 mg) LUTALYSE Injection dose for cattle injected up to 100 days of gestation.

For use with FACTREL® (gonadorelin injection) Injection to synchronize estrous cycles to allow fixed-time artificial insemination (FTAI) in lactating dairy cows: For a full description of the studies conducted for the use of FACTREL Injection and LUTALYSE Injection, please refer to the labeling for FACTREL Injection.

Mares:

For Difficult-to-Breed Mares: In one study with 122 Standardbred and Thoroughbred mares in clinical anestrus for an average of 58 days and treated during the breeding season, behavioral estrus was detected in 81 percent at an average time of 3.7 days after injection with 5 mg LUTALYSE Injection; ovulation occurred an average of 7.0 days after treatment. Of those mares bred, 59% were pregnant following an average of 1.4 services during that estrus.

HOW SUPPLIED

LUTALYSE Injection is available in 30 and 100 mL vials.

STORAGE, HANDLING, AND DISPOSAL

Store at controlled room temperature 20° to 25°C (68° to 77°F).

Use contents within 12 weeks of first vial puncture. Protect from freezing.

Approved by FDA under NADA # 108-901

zoetis

Distributed by:
Zoetis Inc.
Kalamazoo, MI 49007

Revised: April 2019

40026917

Lutalyse® Injection

(dinoprost tromethamine injection)

5 mg dinoprost/mL as dinoprost tromethamine

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

DESCRIPTION

LUTALYSE® Injection (5 mg dinoprost/mL) is a sterile solution containing the naturally occurring prostaglandin F_2 alpha (dinoprost) as the tromethamine salt. Each mL contains dinoprost tromethamine equivalent to 5 mg dinoprost: also, benzyl alcohol, 16.5 mg added as preservative and water for injection.

When necessary, pH was adjusted with sodium hydroxide and/or hydrochloric acid. Dinoprost tromethamine is a white or slightly off-white crystalline powder that is readily soluble in water at room temperature in concentrations to at least 200 mg/mL.

INDICATIONS FOR USE

Cattle: LUTALYSE Injection is indicated as a luteolytic agent. LUTALYSE Injection is effective only in those cattle having a corpus luteum, i.e., those which ovulated at least five days prior to treatment.

Future reproductive performance of animals that are not cycling will be unaffected by injection of LUTALYSE Injection.

- For estrus synchronization in beef cows, beef heifers and replacement dairy heifers
- For unobserved (silent) estrus in lactating dairy cows with a corpus luteum
- For treatment of pyometra (chronic endometritis) in cattle
- For abortion in beef cows, beef heifers and replacement dairy heifers
- For use with FACTREL (gonadorelin injection) Injection to synchronize estrous cycles to allow fixed-time artificial insemination (FTAI) in lactating dairy cows
- For use with EAZI-BREED™ CIDR® (progesterone intravaginal insert) Cattle Insert for synchronization of estrus in lactating dairy cows
- For use with EAZI-BREED™ CIDR® (progesterone intravaginal insert) Cattle Insert for synchronization of estrus in suckled beef cows and replacement beef and dairy heifers, advancement of first postpartum estrus in suckled beef cows, and advancement of first pubertal estrus in beef heifers

Swine:

- For parturition induction in swine

Mares:

- For controlling the timing of estrus in estrous cycling mares
- For difficult-to-breed mares (clinically anestrous mares that have a corpus luteum)

MANAGEMENT CONSIDERATIONS

Many factors contribute to success and failure of reproduction management, and these factors are important also when time of breeding is to be regulated with LUTALYSE Injection. Some of these factors are:

a. Cattle must be ready to breed—they must have a corpus luteum and be healthy;
b. Nutritional status must be adequate as this has a direct effect on conception and the initiation of estrus in heifers or return of estrous cycles in cows following calving;
c. Physical facilities must be adequate to allow cattle handling without being detrimental to the animal;
d. Estrus must be detected accurately if timed AI is not employed;
e. Semen of high fertility must be used;
f. Semen must be inseminated properly.

A successful breeding program can employ LUTALYSE Injection effectively, but a poorly managed breeding program will continue to be poor when LUTALYSE Injection is employed unless other management deficiencies are remedied first. Cattle expressing estrus following LUTALYSE Injection are receptive to breeding by a bull. Using bulls to breed large numbers of cattle in heat following LUTALYSE Injection will require proper management of bulls and cattle.

DOSAGE AND ADMINISTRATION

As with any multi-dose vial, practice aseptic techniques in withdrawing each dose to decrease the possibility of post-injection bacterial infections. Adequately clean

and disinfect the vial stopper prior to entry with a sterile needle and syringe. Use only sterile needles, and use each needle only once.
No vial stopper should be entered more than 20 times. For this reason, the 100 mL bottle should only be used for cattle. The 30 mL bottle may be used for cattle, swine, or mares.

Cattle:

1. For Estrus Synchronization in Beef Cows, Beef Heifers and Replacement Dairy Heifers.
LUTALYSE Injection is used to control the timing of estrus and ovulation in estrous cycling cattle that have a corpus luteum. Inject a dose of 5 mL LUTALYSE Injection (25 mg dinoprost) intramuscularly either once or twice at a 10 to 12 day interval. With the single injection, cattle should be bred at the usual time relative to estrus. With the two injections cattle can be bred after the second injection either at the usual time relative to detected estrus or at about 80 hours after the second injection of LUTALYSE Injection. Estrus is expected to occur 1 to 5 days after injection if a corpus luteum was present. Cattle that do not become pregnant to breeding at estrus on days 1 to 5 after injection will be expected to return to estrus in about 18 to 24 days.

2. For Unobserved (Silent) Estrus in Lactating Dairy Cows with a Corpus Luteum. Inject a dose of 5 mL LUTALYSE Injection (25 mg dinoprost) intramuscularly. Breed cows as they are detected in estrus. If estrus has not been observed by 80 hours after injection, breed at 80 hours. If the cow returns to estrus, breed at the usual time relative to estrus.

3. For Treatment of Pyometra (chronic endometritis) in Cattle. Inject a dose of 5 mL LUTALYSE Injection (25 mg dinoprost) intramuscularly.

4. For Abortion in Beef Cows, Beef Heifers and Replacement Dairy Heifers. LUTALYSE Injection is indicated for its abortifacient effect in beef cows, beef heifers and replacement dairy heifers during the first 100 days of gestation. Inject a dose of 25 mg dinoprost (5 mL) intramuscularly.
Cattle that abort will abort within 35 days of injection.

5. For use with FACTREL® (gonadorelin injection) Injection to synchronize estrous cycles to allow fixed-time artificial insemination (FTAI) in lactating dairy cows: Administer 2 to 4 mL FACTREL Injection (100-200 mcg gonadorelin) per cow as an intramuscular injection in a treatment regimen with the following framework:

- Administer the first dose of FACTREL Injection (2-4 mL) at Day 0
- Administer LUTALYSE (25 mg dinoprost, as dinoprost tromethamine) Injection by intramuscular injection 6-8 days after the first dose of FACTREL Injection.
- Administer a second dose of FACTREL Injection (2-4 mL) 30 to 72 hours after the LUTALYSE injection.
- Perform FTAI 0 to 24 hours after the second dose of FACTREL Injection, or inseminate cows on detected estrus using standard herd practices.

Below are three examples of treatment regimens for FTAI that fit within the dosage regimen framework described immediately above:

	Example 1	Example 2	Example 3
Day 0 (Monday)	1st FACTREL	1st FACTREL	1st FACTREL
Day 7 (the following Monday)	LUTALYSE	LUTALYSE	LUTALYSE
Day 9 (Wednesday)	2nd FACTREL + FTAI at 48 hours after LUTALYSE	2nd FACTREL at 48 hours after LUTALYSE	2nd FACTREL 56 hours after LUTALYSE
Day 10 (Thursday)		FTAI 24 hours after 2nd FACTREL	FTAI 18 hours after 2nd FACTREL

6. For use with EAZI-BREED™ CIDR® (progesterone intravaginal insert) Cattle Insert for Synchronization of Estrus in Lactating Dairy Cows:

- Administer one EAZI-BREED CIDR Cattle Insert per animal and remove 7 days later (for example if administered on a Monday remove the following Monday).
- Administer 5 mL LUTALYSE Injection at the time of removal of the EAZI-BREED CIDR Cattle Insert.
- Observe animals for signs of estrus on Days 2 to 5 after removal of the EAZI-BREED CIDR Cattle Insert and inseminate animals found in estrus following normal herd practices.

7. For use with EAZI-BREED™ CIDR® (progesterone intravaginal insert) Cattle Insert for synchronization of estrus in suckled beef cows and replacement beef and dairy heifers, advancement of first postpartum estrus in suckled beef cows, and advancement of first pubertal estrus in beef heifers:

- Administer one EAZI-BREED CIDR Cattle Insert per animal for 7 days (for example, if administered on a Monday remove on the following Monday).
- Inject 5 mL LUTALYSE Injection (equivalent to 5 mg/mL dinoprost) 1 day prior to EAZI-BREED CIDR Cattle Insert removal, on Day 6 of the 7 day administration period.
- Observe animals for signs of estrus on Days 1 to 3 after removal of the EAZI-BREED CIDR Cattle Insert and inseminate animals about 12 hours after onset of estrus.

Swine:

For Parturition Induction in Swine: For intramuscular use for parturition induction in swine.
LUTALYSE Injection is indicated for parturition induction in swine when injected within 3 days of normal predicted farrowing. The response to treatment varies by individual animals with a mean interval from administration of 2 mL LUTALYSE Injection (10 mg dinoprost) to parturition of approximately 30 hours. This can be employed to control the time of farrowing in sows and gilts in late gestation.

Management Considerations: Several factors must be considered for the successful use of LUTALYSE Injection for parturition induction in swine. The product must be administered at a relatively specific time (treatment earlier than 3 days prior to normal predicted farrowing may result in increased piglet mortality). It is important that adequate records be maintained on (1) the average length of gestation period for the animals on a specific location, and (2) the breeding and projected farrowing dates for each animal. This information is essential to determine the appropriate time for administration of LUTALYSE Injection.

Mares: LUTALYSE Injection is indicated for its luteolytic effect in mares. Administer a single intramuscular injection of 1 mg per 100 lbs (45.5 kg) body weight which is usually 1 mL to 2 mL LUTALYSE Injection. This luteolytic effect can be utilized to control the timing of estrus in estrous cycling and clinically anestrous mares that have a corpus luteum in the following circumstances:

1. **Controlling Time of Estrus of Estrous Cycling Mares:** Mares treated with LUTALYSE Injection during diestrus (4 or more days after ovulation) will return to estrus within 2 to 4 days in most cases and ovulate 8 to 12 days after treatment. This procedure may be utilized as an aid to scheduling the use of stallions.
2. **Difficult-to-Breed Mares:** In extended diestrus there is failure to exhibit regular estrous cycles which is different from true anestrus. Many mares described as anestrus during the breeding season have serum progesterone levels consistent with the presence of a functional corpus luteum. A proportion of "barren", maiden, and lactating mares do not exhibit regular estrous cycles and may be in extended diestrus. Following abortion, early fetal death and resorption, or as a result of "pseudopregnancy", there may be serum progesterone levels consistent with a functional corpus luteum. Treatment of such mares with LUTALYSE Injection usually results in regression of the corpus luteum followed by estrus and/or ovulation. Treatment of "anestrous" mares which abort subsequent to 36 days of pregnancy may not result in return to estrus due to presence of functional endometrial cups.

WARNINGS AND PRECAUTIONS

User Safety: Not for human use. Keep out of the reach of children. Women of childbearing age, asthmatics, and persons with bronchial and other respiratory problems should exercise **extreme caution** when handling this product. In the early stages, women may be unaware of their pregnancies. Dinoprost tromethamine is readily absorbed through the skin and can cause abortion and/or bronchiospasms. Accidental spillage on the skin should be washed off **immediately** with soap and water.

To report suspected adverse events, for technical assistance or to obtain a copy of the Safety Data Sheet (SDS) contact Zoetis Inc. at 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.

Residue Warnings: No milk discard or preslaughter drug withdrawal period is required for labeled uses in cattle. No preslaughter drug withdrawal period is required for labeled uses in swine. Use of this product in excess of the approved dose may result in drug residues. Do not use in horses intended for human consumption.

Animal Safety Warnings: Severe localized clostridial infections associated with injection of LUTALYSE Injection have been reported. In rare instances, such infections have resulted in death.
Aggressive antibiotic therapy should be employed at the first sign of infection at the injection site whether localized or diffuse. Do not administer intravenously (IV) as this route may potentiate adverse reactions. Non-steroidal anti-inflammatory drugs may inhibit prostaglandin synthesis; therefore this class of drugs should not be administered concurrently. Do not administer to pregnant cattle, unless abortion is desired. Cattle administered a progestin would be expected to have a reduced response to LUTALYSE Injection. Do not administer to sows and/or gilts prior to 3 days of normal predicted farrowing as an increased number of stillbirths and postnatal mortality may result. In mares, LUTALYSE Injection is ineffective when administered prior to day-5 after ovulation.
Mare pregnancy status should be determined prior to treatment since LUTALYSE Injection has been reported to induce abortion and parturition when sufficient doses were administered. Mares should not be treated if they suffer from either acute or subacute disorders of the vascular system, gastrointestinal tract, respiratory system, or reproductive tract.

ADVERSE REACTIONS

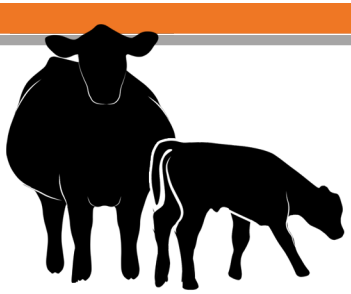
Cattle: Limited salivation has been reported in some instances.
Swine: The most frequently observed side effects were erythema and pruritus, slight incoordination, nesting behavior, itching, urination, defecation, abdominal muscle spasms, tail movements, hyperpnea or dyspnea, increased vocalization, salivation, and at the 100 mg (10x) dose only, possible vomiting. These side effects are transitory, lasting from 10 minutes to 3 hours, and were not detrimental to the health of the animal.
Mares: The most frequently observed side effects are sweating and decreased rectal temperature. However, these have been transient in all cases observed and have not been detrimental to the animal.
Other reactions seen have been increase in heart rate, increase in respiration rate, some abdominal discomfort, locomotor incoordination, and lying down. These effects are usually seen within 15 minutes of injection and disappear within one hour. Mares usually continue to eat during the period of expression of side effects. One anaphylactic reaction of several hundred mares treated with LUTALYSE Injection was reported but was not confirmed.

Contact Information: To report adverse reactions call Zoetis Inc. at 1-888-963-8471.

CLINICAL PHARMACOLOGY

General Biologic Activity: Prostaglandins occur in nearly all mammalian tissues. Prostaglandins, especially PGE's and PGF's, have been shown, in certain species, to 1) increase at time of parturition in amniotic fluid, maternal placenta, myometrium, and blood, 2) stimulate myometrial activity, and 3) to induce either abortion or parturition. Prostaglandins, especially $PGF_2\alpha$, have been shown to 1) increase in the uterus and blood to levels similar to levels achieved by exogenous administration which elicited luteolysis, 2) be capable of crossing from the uterine vein to the ovarian artery (sheep), 3) be related to IUD induced luteal regression (sheep), and 4) be capable of regressing the corpus luteum of most mammalian species studied to date. Prostaglandins have been reported to result in release of pituitary tropic hormones. Data suggest prostaglandins, especially PGE's and PGF's, may be involved in the process of ovulation and gamete transport. Also $PGF_2\alpha$ has been reported to cause increase in blood pressure, bronchoconstriction, and smooth muscle stimulation in certain species.

Metabolism: A number of metabolism studies have been done in laboratory animals. The metabolism of tritium labeled dinoprost (^3H PGF_2 alpha) in the rat and in the monkey was similar.
Although quantitative differences were observed, qualitatively similar metabolites were produced.
A study demonstrated that equimolar doses of ^3H PGF_2 alpha Tham and ^3H PGF_2 alpha free acid administered intravenously to rats demonstrated no significant differences in blood concentration of dinoprost. An interesting observation in the above study was that the radioactive dose of ^3H PGF_2 alpha rapidly distributed in tissues and dissipated in tissues with almost the same curve as it did in the serum. The half-life of dinoprost in bovine blood has been reported to be on the order of minutes. A complete study on the distribution of decline of ^3H PGF_2 alpha Tham in the tissue of rats was well correlated with the work done in the cow. Cattle serum collected during 24 hours after doses of 0 to 250 mg dinoprost have been assayed by



VITAFERM®

GESTATION TABLE

BASED ON 283 DAYS

Date of Service	Calf Due	Date of Service	Calf Due	Date of Service	Calf Due	Date of Service	Calf Due	Date of Service	Calf Due	Date of Service	Calf Due
Jan 1	Oct 10	Feb 1	Nov 10	Mar 1	Dec 8	Apr 1	Jan 8	May 1	Feb 7	Jun 1	Mar 10
Jan 2	Oct 11	Feb 2	Nov 11	Mar 2	Dec 9	Apr 2	Jan 9	May 2	Feb 8	Jun 2	Mar 11
Jan 3	Oct 12	Feb 3	Nov 12	Mar 3	Dec 10	Apr 3	Jan 10	May 3	Feb 9	Jun 3	Mar 12
Jan 4	Oct 13	Feb 4	Nov 13	Mar 4	Dec 11	Apr 4	Jan 11	May 4	Feb 10	Jun 4	Mar 13
Jan 5	Oct 14	Feb 5	Nov 14	Mar 5	Dec 12	Apr 5	Jan 12	May 5	Feb 11	Jun 5	Mar 14
Jan 6	Oct 15	Feb 6	Nov 15	Mar 6	Dec 13	Apr 6	Jan 13	May 6	Feb 12	Jun 6	Mar 15
Jan 7	Oct 16	Feb 7	Nov 16	Mar 7	Dec 14	Apr 7	Jan 14	May 7	Feb 13	Jun 7	Mar 16
Jan 8	Oct 17	Feb 8	Nov 17	Mar 8	Dec 15	Apr 8	Jan 15	May 8	Feb 14	Jun 8	Mar 17
Jan 9	Oct 18	Feb 9	Nov 18	Mar 9	Dec 16	Apr 9	Jan 16	May 9	Feb 15	Jun 9	Mar 18
Jan 10	Oct 19	Feb 10	Nov 19	Mar 10	Dec 17	Apr 10	Jan 17	May 10	Feb 16	Jun 10	Mar 19
Jan 11	Oct 20	Feb 11	Nov 20	Mar 11	Dec 18	Apr 11	Jan 18	May 11	Feb 17	Jun 11	Mar 20
Jan 12	Oct 21	Feb 12	Nov 21	Mar 12	Dec 19	Apr 12	Jan 19	May 12	Feb 18	Jun 12	Mar 21
Jan 13	Oct 22	Feb 13	Nov 22	Mar 13	Dec 20	Apr 13	Jan 20	May 13	Feb 19	Jun 13	Mar 22
Jan 14	Oct 23	Feb 14	Nov 23	Mar 14	Dec 21	Apr 14	Jan 21	May 14	Feb 20	Jun 14	Mar 23
Jan 15	Oct 24	Feb 15	Nov 24	Mar 15	Dec 22	Apr 15	Jan 22	May 15	Feb 21	Jun 15	Mar 24
Jan 16	Oct 25	Feb 16	Nov 25	Mar 16	Dec 23	Apr 16	Jan 23	May 16	Feb 22	Jun 16	Mar 25
Jan 17	Oct 26	Feb 17	Nov 26	Mar 17	Dec 24	Apr 17	Jan 24	May 17	Feb 23	Jun 17	Mar 26
Jan 18	Oct 27	Feb 18	Nov 27	Mar 18	Dec 25	Apr 18	Jan 25	May 18	Feb 24	Jun 18	Mar 27
Jan 19	Oct 28	Feb 19	Nov 28	Mar 19	Dec 26	Apr 19	Jan 26	May 19	Feb 25	Jun 19	Mar 28
Jan 20	Oct 29	Feb 20	Nov 29	Mar 20	Dec 27	Apr 20	Jan 27	May 20	Feb 26	Jun 20	Mar 29
Jan 21	Oct 30	Feb 21	Nov 30	Mar 21	Dec 28	Apr 21	Jan 28	May 21	Feb 27	Jun 21	Mar 30
Jan 22	Oct 31	Feb 22	Dec 1	Mar 22	Dec 29	Apr 22	Jan 29	May 22	Feb 28	Jun 22	Mar 31
Jan 23	Nov 1	Feb 23	Dec 2	Mar 23	Dec 30	Apr 23	Jan 30	May 23	Mar 1	Jun 23	Apr 1
Jan 24	Nov 2	Feb 24	Dec 3	Mar 24	Dec 31	Apr 24	Jan 31	May 24	Mar 2	Jun 24	Apr 2
Jan 25	Nov 3	Feb 25	Dec 4	Mar 25	Jan 1	Apr 25	Feb 1	May 25	Mar 3	Jun 25	Apr 3
Jan 26	Nov 4	Feb 26	Dec 5	Mar 26	Jan 2	Apr 26	Feb 2	May 26	Mar 4	Jun 26	Apr 4
Jan 27	Nov 5	Feb 27	Dec 6	Mar 27	Jan 3	Apr 27	Feb 3	May 27	Mar 5	Jun 27	Apr 5
Jan 28	Nov 6	Feb 28	Dec 7	Mar 28	Jan 4	Apr 28	Feb 4	May 28	Mar 6	Jun 28	Apr 6
Jan 29	Nov 7			Mar 29	Jan 5	Apr 29	Feb 5	May 29	Mar 7	Jun 29	Apr 7
Jan 30	Nov 8			Mar 30	Jan 6	Apr 30	Feb 6	May 30	Mar 8	Jun 30	Apr 8
Jan 31	Nov 9			Mar 31	Jan 7			May 31	Mar 9		

Date of Service	Calf Due	Date of Service	Calf Due	Date of Service	Calf Due	Date of Service	Calf Due	Date of Service	Calf Due	Date of Service	Calf Due
Jul 1	Apr 9	Aug 1	May 10	Sep 1	Jun 10	Oct 1	Jul 10	Nov 1	Aug 10	Dec 1	Sep 9
Jul 2	Apr 10	Aug 2	May 11	Sep 2	Jun 11	Oct 2	Jul 11	Nov 2	Aug 11	Dec 2	Sep 10
Jul 3	Apr 11	Aug 3	May 12	Sep 3	Jun 12	Oct 3	Jul 12	Nov 3	Aug 12	Dec 3	Sep 11
Jul 4	Apr 12	Aug 4	May 13	Sep 4	Jun 13	Oct 4	Jul 13	Nov 4	Aug 13	Dec 4	Sep 12
Jul 5	Apr 13	Aug 5	May 14	Sep 5	Jun 14	Oct 5	Jul 14	Nov 5	Aug 14	Dec 5	Sep 13
Jul 6	Apr 14	Aug 6	May 15	Sep 6	Jun 15	Oct 6	Jul 15	Nov 6	Aug 15	Dec 6	Sep 14
Jul 7	Apr 15	Aug 7	May 16	Sep 7	Jun 16	Oct 7	Jul 16	Nov 7	Aug 16	Dec 7	Sep 15
Jul 8	Apr 16	Aug 8	May 17	Sep 8	Jun 17	Oct 8	Jul 17	Nov 8	Aug 17	Dec 8	Sep 16
Jul 9	Apr 17	Aug 9	May 18	Sep 9	Jun 18	Oct 9	Jul 18	Nov 9	Aug 18	Dec 9	Sep 17
Jul 10	Apr 18	Aug 10	May 19	Sep 10	Jun 19	Oct 10	Jul 19	Nov 10	Aug 19	Dec 10	Sep 18
Jul 11	Apr 19	Aug 11	May 20	Sep 11	Jun 20	Oct 11	Jul 20	Nov 11	Aug 20	Dec 11	Sep 19
Jul 12	Apr 20	Aug 12	May 21	Sep 12	Jun 21	Oct 12	Jul 21	Nov 12	Aug 21	Dec 12	Sep 20
Jul 13	Apr 21	Aug 13	May 22	Sep 13	Jun 22	Oct 13	Jul 22	Nov 13	Aug 22	Dec 13	Sep 21
Jul 14	Apr 22	Aug 14	May 23	Sep 14	Jun 23	Oct 14	Jul 23	Nov 14	Aug 23	Dec 14	Sep 22
Jul 15	Apr 23	Aug 15	May 24	Sep 15	Jun 24	Oct 15	Jul 24	Nov 15	Aug 24	Dec 15	Sep 23
Jul 16	Apr 24	Aug 16	May 25	Sep 16	Jun 25	Oct 16	Jul 25	Nov 16	Aug 25	Dec 16	Sep 24
Jul 17	Apr 25	Aug 17	May 26	Sep 17	Jun 26	Oct 17	Jul 26	Nov 17	Aug 26	Dec 17	Sep 25
Jul 18	Apr 26	Aug 18	May 27	Sep 18	Jun 27	Oct 18	Jul 27	Nov 18	Aug 27	Dec 18	Sep 26
Jul 19	Apr 27	Aug 19	May 28	Sep 19	Jun 28	Oct 19	Jul 28	Nov 19	Aug 28	Dec 19	Sep 27
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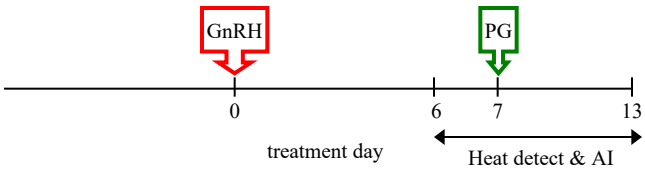
Jul 21	Apr 29	Aug 21	May 30	Sep 21	Jun 30	Oct 21	Jul 30	Nov 21	Aug 30	Dec 21	Sep 29
Jul 22	Apr 30	Aug 22	May 31	Sep 22	Jul 1	Oct 22	Jul 31	Nov 22	Aug 31	Dec 22	Sep 30
Jul 23	May 1	Aug 23	Jun 1	Sep 23	Jul 2	Oct 23	Aug 1	Nov 23	Sep 1	Dec 23	Oct 1
Jul 24	May 2	Aug 24	Jun 2	Sep 24	Jul 3	Oct 24	Aug 2	Nov 24	Sep 2	Dec 24	Oct 2
Jul 25	May 3	Aug 25	Jun 3	Sep 25	Jul 4	Oct 25	Aug 3	Nov 25	Sep 3	Dec 25	Oct 3
Jul 26	May 4	Aug 26	Jun 4	Sep 26	Jul 5	Oct 26	Aug 4	Nov 26	Sep 4	Dec 26	Oct 4
Jul 27	May 5	Aug 27	Jun 5	Sep 27	Jul 6	Oct 27	Aug 5	Nov 27	Sep 5	Dec 27	Oct 5
Jul 28	May 6	Aug 28	Jun 6	Sep 28	Jul 7	Oct 28	Aug 6	Nov 28	Sep 6	Dec 28	Oct 6
Jul 29	May 7	Aug 29	Jun 7	Sep 29	Jul 8	Oct 29	Aug 7	Nov 29	Sep 7	Dec 29	Oct 7
Jul 30	May 8	Aug 30	Jun 8	Sep 30	Jul 9	Oct 30	Aug 8	Nov 30	Sep 8	Dec 30	Oct 8
Jul 31	May 9	Aug 31	Jun 9			Oct 31	Aug 9			Dec 31	Oct 9

Beef Reproduction Task Force

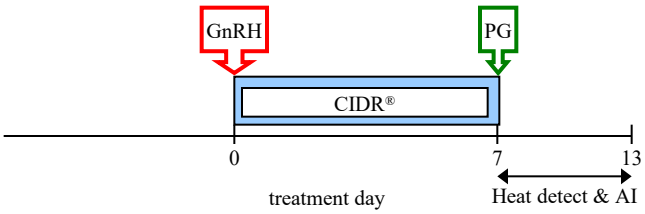
BEEF COW PROTOCOLS - 2021

HEAT DETECTION

Select Synch

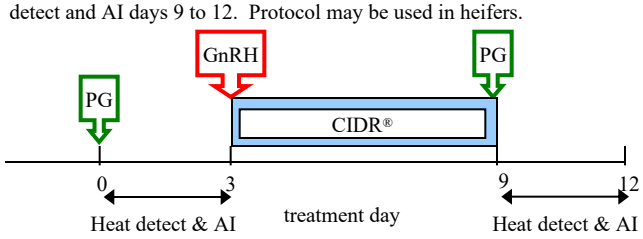


Select Synch + CIDR®



PG 6-day CIDR®

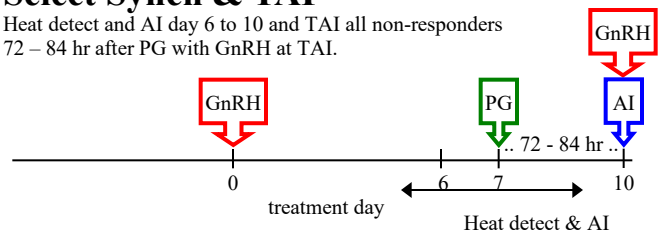
Heat detect and AI days 0 to 3. Administer CIDR to non-responders and heat detect and AI days 9 to 12. Protocol may be used in heifers.



HEAT DETECT & TIME AI (TAI)

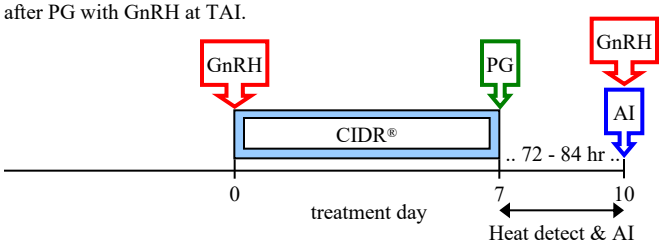
Select Synch & TAI

Heat detect and AI day 6 to 10 and TAI all non-responders 72 – 84 hr after PG with GnRH at TAI.



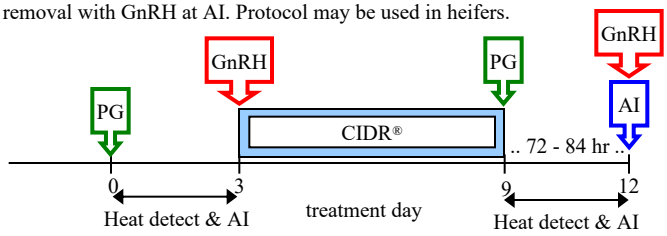
Select Synch + CIDR® & TAI

Heat detect and AI day 7 to 10 and TAI all non-responders 72 - 84 hr after PG with GnRH at TAI.



PG 6-day CIDR® & TAI

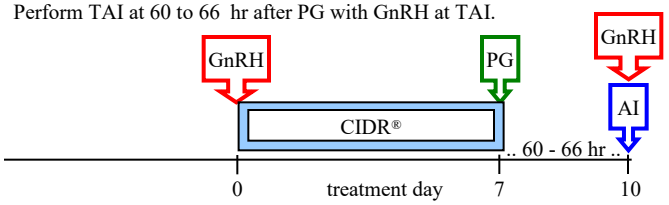
Heat detect & AI days 0 to 3. Administer CIDR to non-responders & heat detect and AI days 9 to 12. TAI non-responders 72 - 84 hr after CIDR removal with GnRH at AI. Protocol may be used in heifers.



FIXED-TIME AI (TAI)*

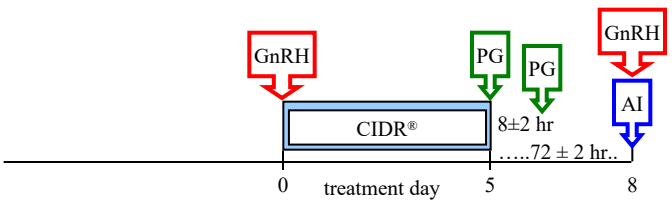
7-day CO-Synch + CIDR®

Perform TAI at 60 to 66 hr after PG with GnRH at TAI.



5-day CO-Synch + CIDR®

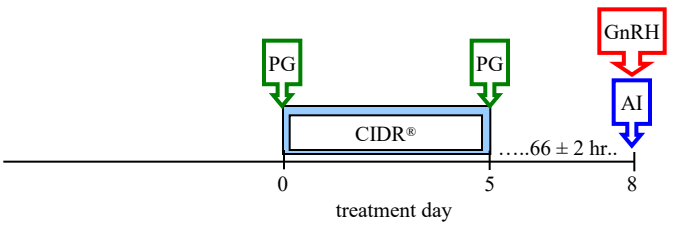
Perform TAI at 72 ± 2 hr after CIDR removal with GnRH at TAI.
Two injections of PG 8 ± 2 hr apart are required for this protocol.



FIXED-TIME AI (TAI)*
for *Bos Indicus* cows only

Bos Indicus PG 5-day + CIDR®

Perform TAI at 66 ± 2 hr after CIDR removal with GnRH at TAI.



* The time listed for "Fixed-time AI" should be considered as the approximate average time of insemination. This should be based on the number of cows to inseminate, labor, and facilities.

These protocol sheets were assembled by the ***Beef Reproduction Task Force; BeefRepro.org***. Programs are intended to promote sustainable food production systems by the beef industry through sound reproductive management practices for replacement heifers and postpartum cows. The Beef Reproduction Task Force recommends working with a licensed veterinarian for proper use and application of all reproductive hormones. **Approved 11-17-2020**.

GnRH — Cystorelin®, Factrel®, Fertagyl®, OvaCyst®, GONABreed®

PG — estroPLAN®, Estrumate®, In-Synch®, Lutalyse®, Lutalyse® *HighCon*, ProstaMate®, SYNCHSURE™