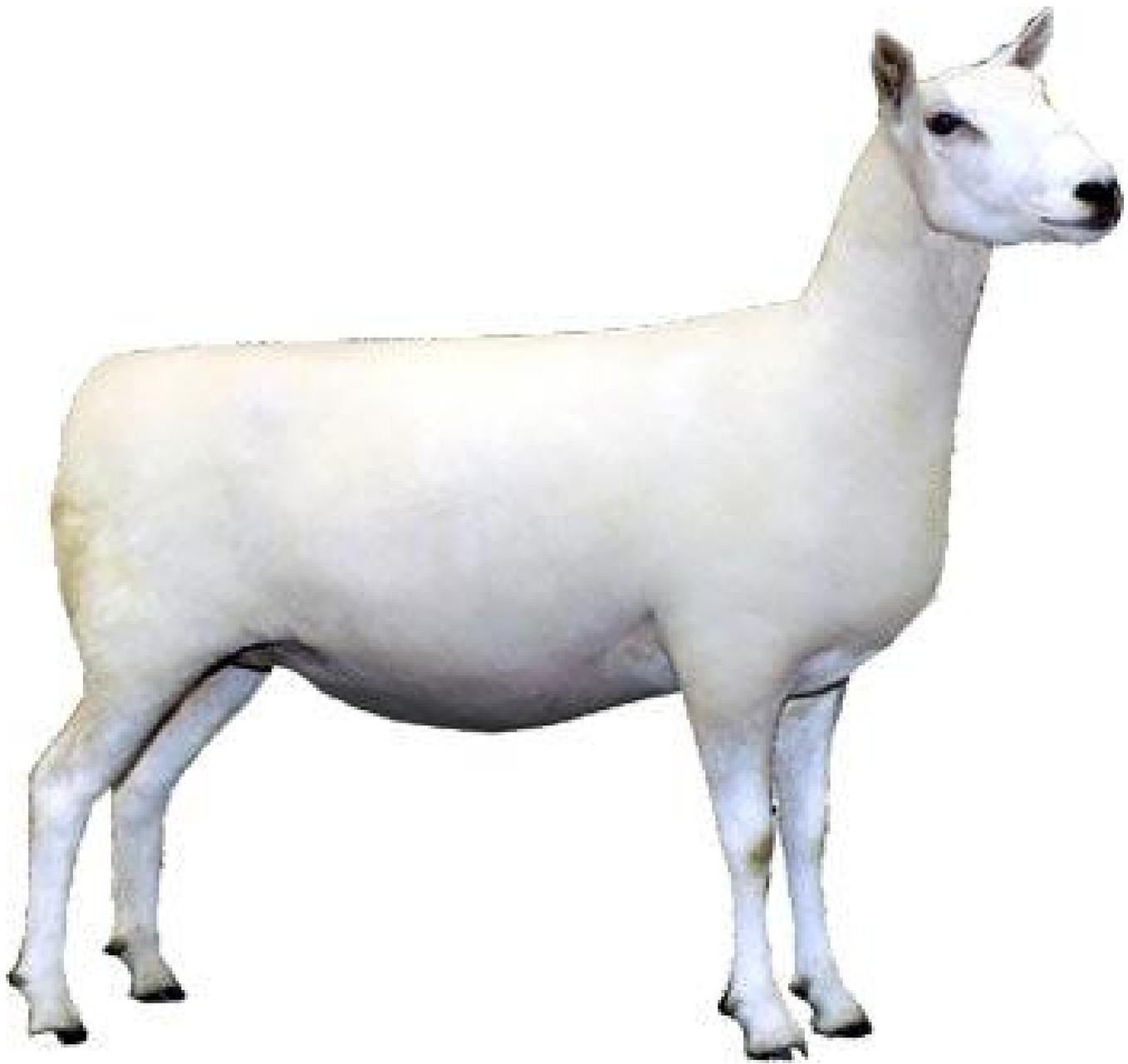


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Name _____ **KEY** _____ Contestant # _____ County _____

Intermediate Livestock Breeds Identification – 2020

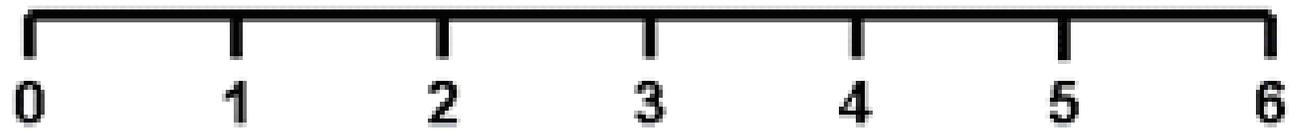
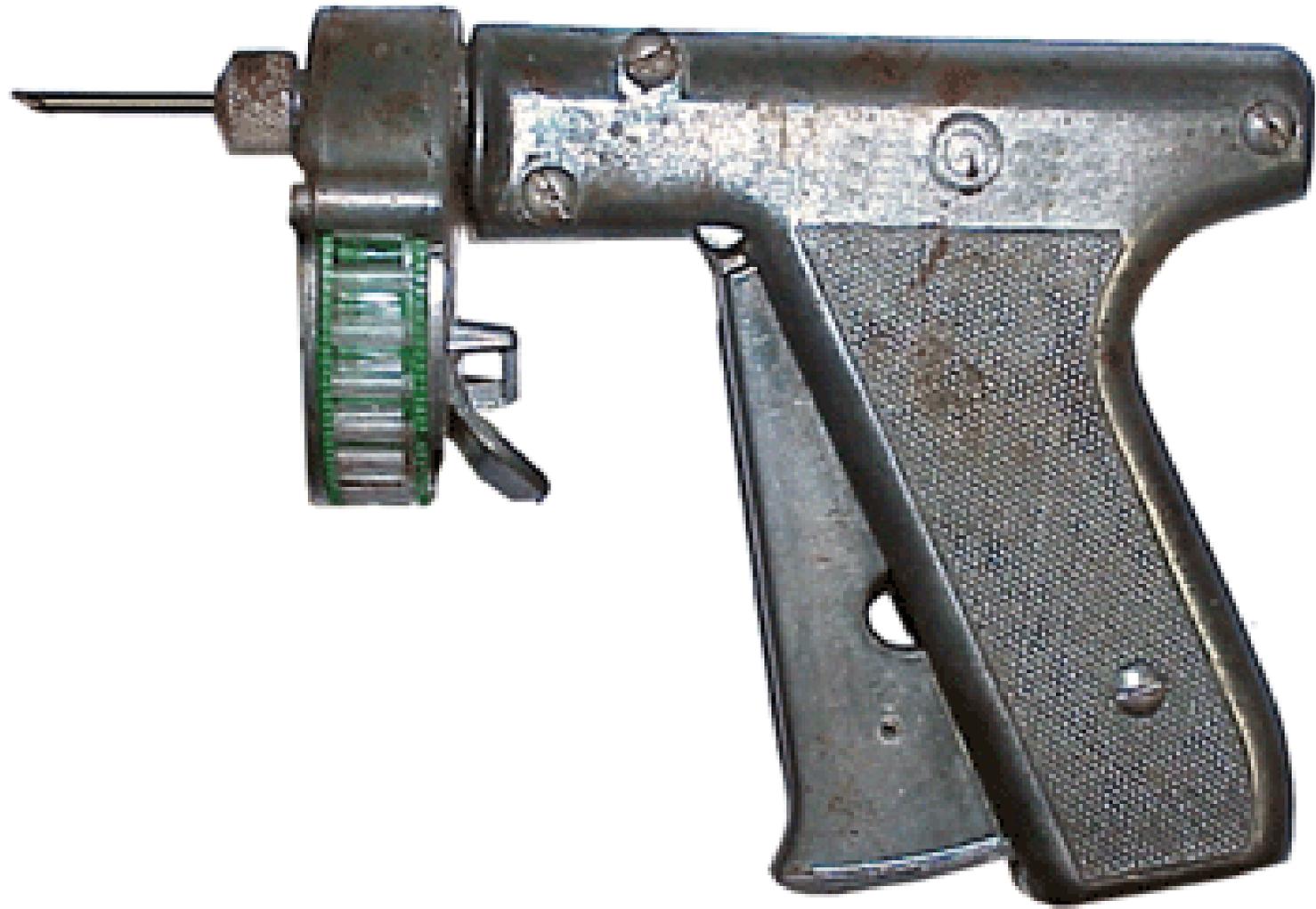
INSTRUCTIONS: For each picture, use the columns on the right to choose the number or letter that indicates your answer for each livestock breed. Use capital letters and write neatly. **Intermediates** provide answers for breed name and origin of breed. Each question is worth 5 points for the breed and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

	Breed Name	Origin of Breed
1.	<u>30</u>	<u>D</u>
2.	<u>45</u>	<u>E</u>
3.	<u>37</u>	<u>I</u>
4.	<u>27</u>	<u>J</u>
5.	<u>50</u>	<u>F</u>
6.	<u>54</u>	<u>H</u>
7.	<u>52</u>	<u>G</u>
8.	<u>1</u>	<u>C</u>
9.	<u>3</u>	<u>B</u>
10.	<u>14</u>	<u>A</u>

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

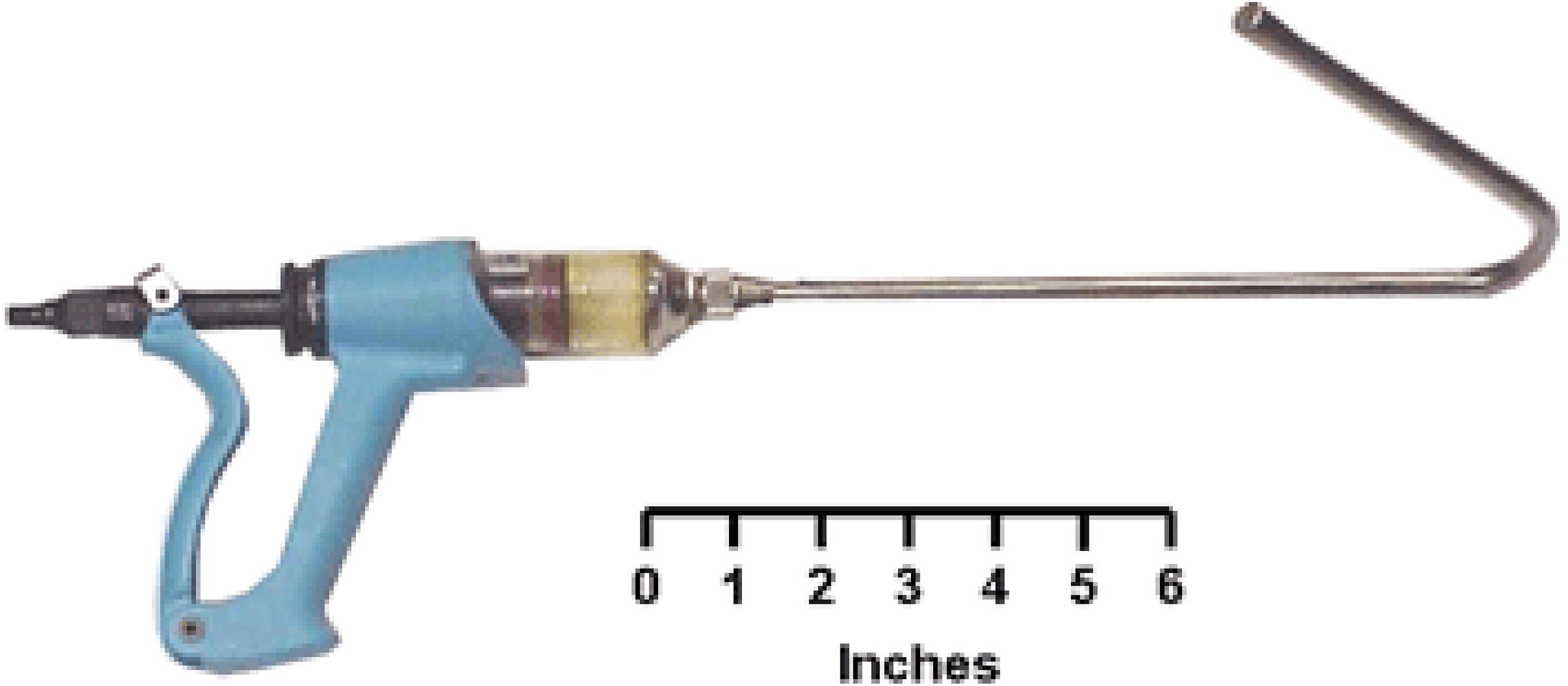
Origins of Breeds – to be used in answer column 2 by Intermediates	
Answers will be used ONLY once	
A. Tees River Valley in England	F. England
B. U.S. primarily at USDA Experiment Station in Jeanerette, LA.	G. Danish descendants
C. Aberdeen and Angus Counties of Scotland	H. Developed in Butler and Warren Counties, OH, US
D. Cheviot Hills of the border of England and Scotland	I. Maine, U.S.
E. Suffolk, England	J. Descendants of goats brought to America by Spanish Explorers

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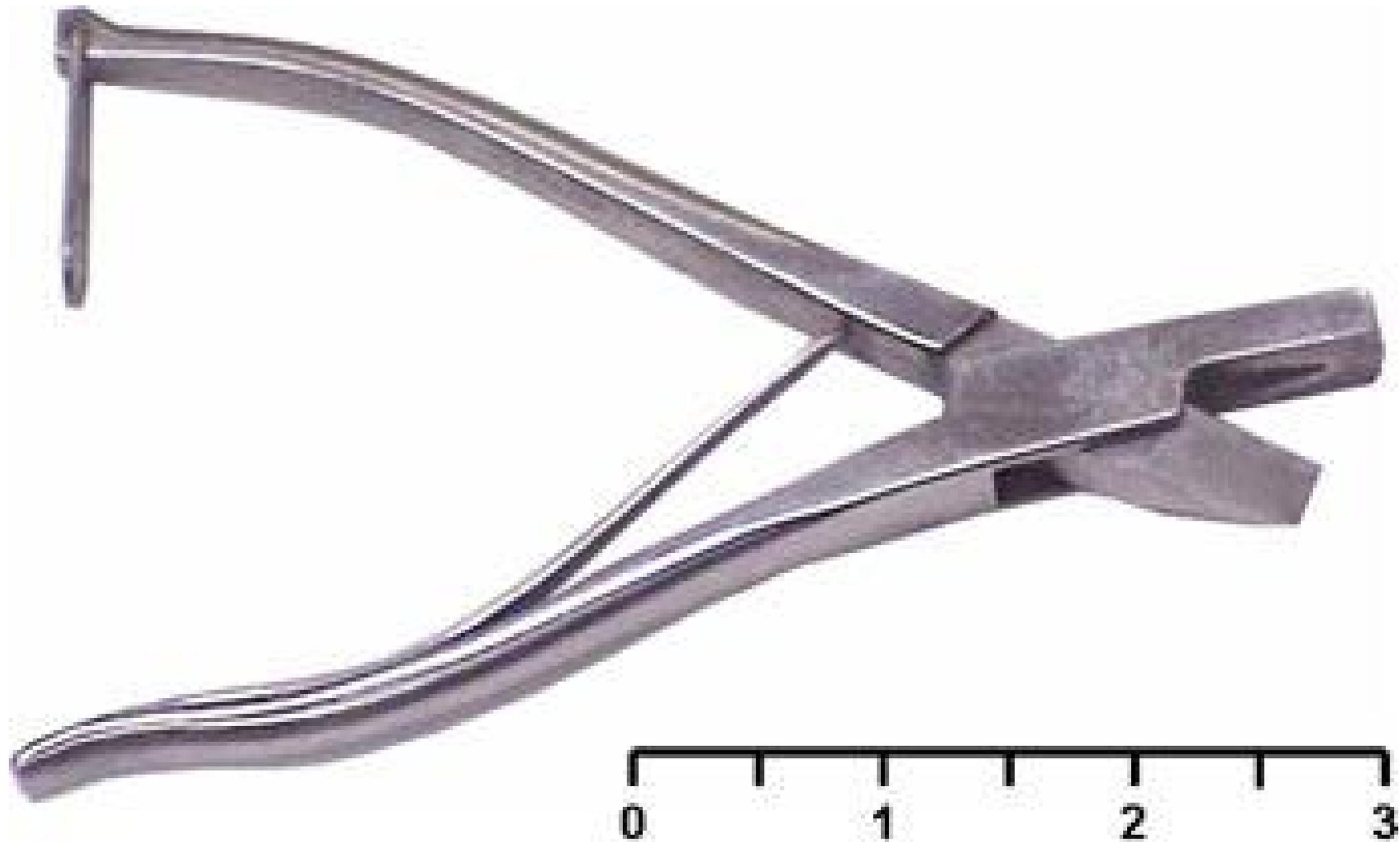


Inches

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Inches

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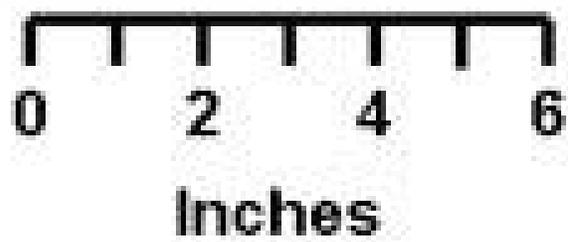


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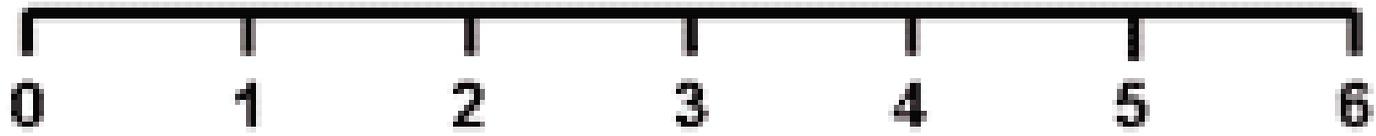
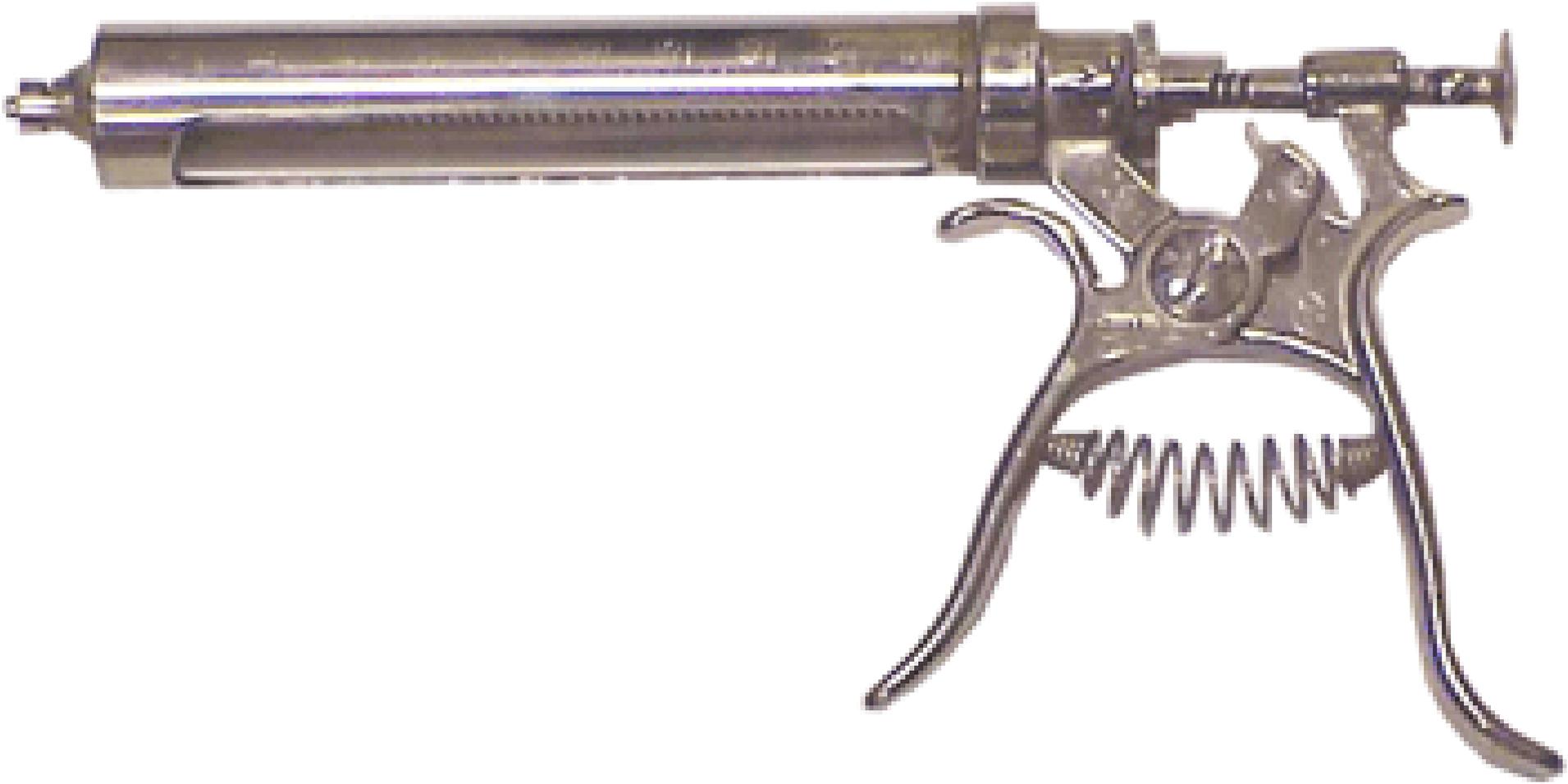


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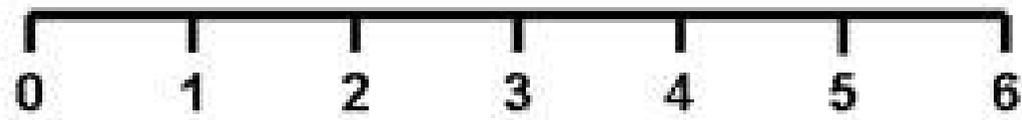


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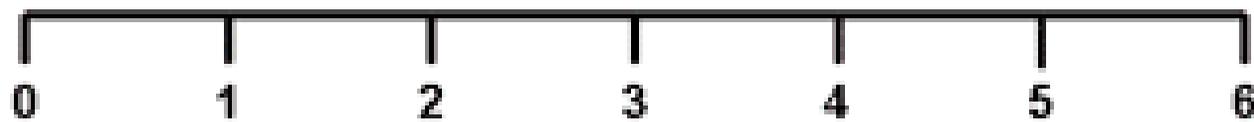
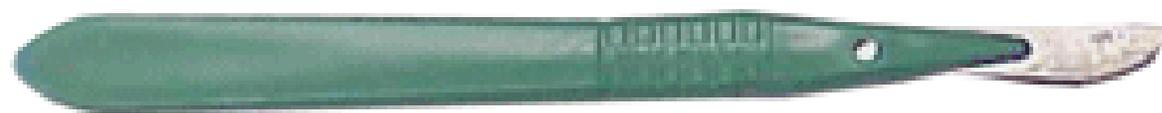
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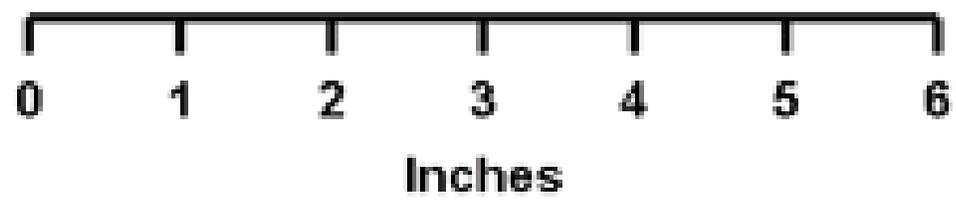
Inches

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Name _____ **KEY** _____ Contestant # _____ County _____

Intermediate Livestock Feed Identification-2020

INSTRUCTIONS: For each sample, use the columns on the right to choose the number or letter that indicates your answer for each livestock feedstuff. Use capital letters and write neatly. **Intermediates** provide answers for feedstuff name and nutrient group. Each question is worth 5 points (100 points total for Intermediates).

	Feedstuff Name	Nutrient Group
1.	<u>10</u>	<u>P</u>
2.	<u>2</u>	<u>P or V</u>
3.	<u>71</u>	<u>C</u>
4.	<u>55</u>	<u>C</u>
5.	<u>73</u>	<u>C</u>
6.	<u>16</u>	<u>C</u>
7.	<u>52</u>	<u>P or F</u>
8.	<u>9</u>	<u>P</u>
9.	<u>47</u>	<u>M</u>
10.	<u>18</u>	<u>M</u>

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

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

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

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

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

Intermediate Hay Judging Class – 2020

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

Official: 2-1-3-4 Cuts: 3-6-2

Contestant Number _____	
Placing Score _____	
<i>University of Kentucky College of Agriculture Animal Sciences Department</i>	
Contestant's Name _____ _____	
Address _____ _____	
County _____	
Class <u>Hay Judging Class</u>	

A	1 2 3 4	47
B	1 2 4 3	45
C	1 3 2 4	38
D	1 3 4 2	27
E	1 4 2 3	34
F	1 4 3 2	25
G	2 1 3 4	50
H	2 1 4 3	48
I	2 3 1 4	44
J	2 3 4 1	36
K	2 4 1 3	40
L	2 4 3 1	34
M	3 1 2 4	32
N	3 1 4 2	21
O	3 2 1 4	35
P	3 2 4 1	27
Q	3 4 1 2	13
R	3 4 2 1	16
S	4 1 2 3	26
T	4 1 3 2	17
U	4 2 1 3	29
V	4 2 3 1	23
W	4 3 1 2	11
X	4 3 2 1	14

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

Scenario:

You have kept a group of replacement heifers to winter and breed this spring. Rank the four hay samples in the order that you would utilize them as the most effective source of forage for these replacements. A 12% pelleted beef feed is being fed, but mainly as a means to break heifers to come and calm cattle down. Ultimately the hay you choose will be the main source of feed until spring grass arrives.

Questions

- 1.) Which hay sample is coarsest stemmed? ____**3**____
- 2.) Which hay sample has good color and looks the most palatable? ____**2**____
- 3.) Between hay sample 2 and 3 which is rougher and poorer quality? ____**3**____
- 4.) Between hay sample 1 and 4 which would ruminants clean up and leave the least waste? __**1**____
- 5.) Which hay sample looks the poorest? ____**3 or 4**____



LONGRANGE™ (eprinomectin)

Extended-Release Injectable Parasiticide
5% Sterile Solution
For the Treatment and Control of Internal and External Parasites of Cattle on Pasture with Persistent Effectiveness

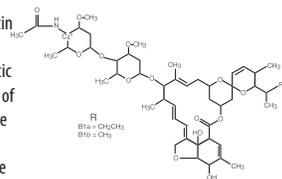
Not for use in female dairy cattle 20 months of age or older, including dry dairy cows. Not for use in calves to be processed for veal. Not for use in breeding bulls, or in calves less than 3 months of age. Not for use in cattle managed in feedlots or under intensive rotational grazing.

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

DESCRIPTION

LONGRANGE™ (eprinomectin) is a ready-to-use, sterile injectable preparation containing eprinomectin, a member of the macrocyclic lactone class of antiparasitics. Each mL of LONGRANGE contains 50 mg of eprinomectin in a co-solvent system of N-methyl-2-pyrrolidone (30% v/v) and triacetin (qs), along with 50 mg of poly-lactide-co-glycolic-acid 75:25 (PLGA), a polymer that allows a slow release of eprinomectin from the formulation, thereby maintaining a prolonged duration of product effectiveness. Butylated hydroxytoluene (0.2 mg/mL) acts as an antioxidant in the formulation.

The chemical name of eprinomectin is 4"-deoxy-4"-epiacetylaminovermectin B₁. It is a semi-synthetic member of the avermectin family of compounds consisting of a mixture of two homologous components, B_{1a} and B_{1b}, which differ by a single methylene group at C₂₆.



INDICATIONS FOR USE

LONGRANGE, when administered at the recommended dose volume of 1 mL per 110 lb (50 kg) body weight, is effective in the treatment and control of the following internal and external parasites of cattle:

Gastrointestinal Roundworms	Lungworms
<i>Cooperia oncophora</i> – Adults and L ₄	<i>Dictyocaulus viviparus</i> – Adults
<i>Cooperia punctata</i> – Adults and L ₄	
<i>Cooperia sumabada</i> – Adults and L ₄	Grubs
<i>Haemonchus placei</i> – Adults	<i>Hypoderma bovis</i>
<i>Oesophagostomum radiatum</i> – Adults	
<i>Ostertagia lyrata</i> – Adults	Mites
<i>Ostertagia ostertagi</i> – Adults, L ₄ , and inhibited L ₄	<i>Sarcoptes scabiei</i> var. <i>bovis</i>
<i>Trichostrongylus axei</i> – Adults and L ₄	
<i>Trichostrongylus colubriformis</i> – Adults	

Persistent Activity

LONGRANGE has been proven to effectively protect cattle from reinfection with the following parasites for the indicated amounts of time following treatment:

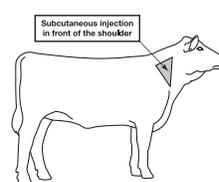
Parasites	Durations of Persistent Effectiveness
Gastrointestinal Roundworms	
<i>Cooperia oncophora</i>	100 days
<i>Cooperia punctata</i>	100 days
<i>Haemonchus placei</i>	120 days
<i>Oesophagostomum radiatum</i>	120 days
<i>Ostertagia lyrata</i>	120 days
<i>Ostertagia ostertagi</i>	120 days
<i>Trichostrongylus axei</i>	100 days
Lungworms	
<i>Dictyocaulus viviparus</i>	150 days

DOSAGE AND ADMINISTRATION

LONGRANGE™ (eprinomectin) should be given only by subcutaneous injection in front of the shoulder at the recommended dosage level of 1 mg eprinomectin per kg body weight (1 mL per 110 lb body weight). Each mL of LONGRANGE contains 50 mg of eprinomectin, sufficient to treat 110 lb (50 kg) body weight.

Body Weight (lb)	Dose Volume (mL)
110	1
220	2
330	3
440	4
550	5
660	6
770	7
880	8
990	9
1100	10

Divide doses greater than 10 mL between two injection sites to reduce occasional discomfort or site reaction.



LONGRANGE is to be given subcutaneously only. Animals should be appropriately restrained to achieve the proper route of administration. Inject under the loose skin in front of the shoulder (see illustration) using a 16 or 18 gauge, ½ to ¾ inch needle. Sanitize the injection site by applying a suitable disinfectant. Clean, properly disinfected needles should be used to reduce the potential for injection site infections.

50 mL bottle size: Use only polypropylene syringes. Not for use with polycarbonate syringe material. If syringe material is not known, contact the syringe manufacturer prior to use for identification. Do not use beyond 3 months after stopper has been punctured. Discard bottle after 15 stopper punctures. **250 mL and 500 mL bottle sizes: Use only automatic syringe equipment provided by Merial.** To obtain compatible equipment, contact Merial at 1-888-637-4251 or your veterinarian. LONGRANGE should not be stored in automatic syringe equipment. Automatic syringe equipment should be thoroughly cleaned after each use. Discard bottle after one stopper puncture with draw-off spike. No special handling or protective clothing is necessary.

WARNINGS AND PRECAUTIONS

Withdrawal Periods and Residue Warnings

Animals intended for human consumption must not be slaughtered within 48 days of the last treatment. This drug product is not approved for use in female dairy cattle 20 months of age or older, including dry dairy cows. Use in these cattle may cause drug residues in milk and/or in calves born to these cows. A withdrawal period has not been established for pre-ruminating calves. Do not use in calves to be processed for veal.

User Safety Warnings

Not for Use in Humans. Keep this and all drugs out of the reach of children. The material safety data sheet (MSDS) contains more detailed occupational safety information. To report adverse effects, to obtain an MSDS, or for assistance, 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>.

Animal Safety Warnings and Precautions

The product is likely to cause tissue damage at the site of injection, including possible granulomas and necrosis. These reactions have disappeared without treatment. Local tissue reaction may result in trim loss of edible tissue at slaughter. Observe cattle for injection site reactions. If injection site reactions are suspected, consult your veterinarian. This product is not for intravenous or intramuscular use. Protect product from light. LONGRANGE™ (eprinomectin) has been developed specifically for use in cattle only. This product should not be used in other animal species.

When to Treat Cattle with Grubs

LONGRANGE effectively controls all stages of cattle grubs. However, proper timing of treatment is important. For the most effective results, cattle should be treated as soon as possible after the end of the heel fly (warble fly) season. Destruction of *Hypoderma* larvae (cattle grubs) at the period when these grubs are in vital areas may cause undesirable host-parasite reactions, including the possibility of fatalities. Killing *Hypoderma lineatum* when it is in the tissue surrounding the esophagus (gullet) may cause salivation and bloat; killing *H. bovis* when it is in the vertebral canal may cause staggering or paralysis. These reactions are not specific to treatment with LONGRANGE, but can occur with any successful treatment of grubs. Cattle should be treated either before or after these stages of grub development. Consult your veterinarian concerning the proper time for treatment.

Environmental Hazards

Studies indicate that when eprinomectin comes in contact with soil, it readily and tightly binds to the soil and becomes inactive over time. Free eprinomectin may adversely affect fish and certain aquatic organisms. Do not contaminate water by direct application or by improper disposal of drug containers. Dispose of containers in an approved landfill or by incineration.

As with other avermectins, eprinomectin is excreted in the dung of treated animals and can inhibit the reproduction and growth of pest and beneficial insects that use dung as a source of food and for reproduction. The magnitude and duration of such effects are species and life-cycle specific. When used according to label directions, the product is not expected to have an adverse impact on populations of dung-dependent insects.

Not for use in cattle managed in feedlots or under intensive rotational grazing because the environmental impact has not been evaluated for these scenarios.

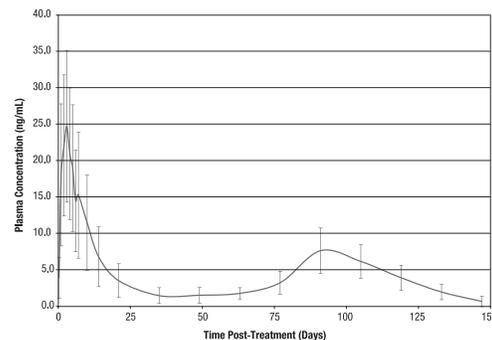
Other Warnings: Underdosing and/or subtherapeutic concentrations of extended-release anthelmintic products may encourage the development of parasite resistance. It is recommended that parasite resistance be monitored following the use of any anthelmintic with the use of a fecal egg count reduction test program.

CLINICAL PHARMACOLOGY

Due to its unique formulation characteristics, when LONGRANGE is injected subcutaneously in the shoulder area of cattle, a polymeric PLGA matrix is formed. The biodegradable matrix solidifies in vivo to form an in situ forming gel, which allows a gradual release of eprinomectin from the formulation. The rate-limiting step is diffusion of the drug through the gel matrix. Because of its mechanism of release, absorption characteristics can be highly dependent upon the injection technique used and the corresponding surface to volume ratio of the gel.

Clinical efficacy of avermectins and milbemycins is closely related to their pharmacokinetic behavior, and the time of parasite exposure to active drug concentrations is relevant to obtain optimal and persistent antiparasitic activity (Lanusse et al., 1997; Lifschitz et al., 1999; Lifschitz et al., 2004; Shoop et al., 1996). Lifschitz et al. (1999) indicated that plasma concentrations between 0.5 and 1 ng/mL would represent the minimal drug level required for optimal nematocidal activity, while others have suggested minimum levels of 1 to 2 ng/mL. Pharmacokinetic studies of LONGRANGE in cattle indicate that effective plasma levels remain for an extended period of time (at least 100 days).

Mean Eprinomectin B₁ Plasma Concentration Versus Time Following a Single Subcutaneous Injection of LONGRANGE™ at a Dose Rate of 1 mg Eprinomectin per kg Body Weight in Beef Cattle (Arithmetic Mean ± Standard Deviation of the Mean, n=42)



Mode of Action

The macrocyclic lactones have a unique mode of action. Compounds of this class bind selectively and with high affinity to glutamate-gated chloride ion channels that are present in invertebrate nerve and muscle cells. This leads to an increase in the permeability of the cell membrane to chloride ions with hyperpolarization of the nerve or muscle cell, resulting in paralysis and death of the parasite. Compounds of this class may also interact in other ligand-gated chloride ion channels, such as those gated by the neurotransmitter gamma-aminobutyric acid (GABA).

The margin of safety for compounds of this class is at least partially attributable to the fact that mammals do not have glutamate-gated chloride ion channels, and that the macrocyclic lactones have low affinity for other mammalian ligand-gated channels and do not readily cross the blood-brain barrier.

TARGET ANIMAL SAFETY

Clinical studies have demonstrated the wide margin of safety of LONGRANGE™ (eprinomectin). Overdosing at 3 to 5 times the recommended dose resulted in a statistically significant reduction in average weight gain when compared to the group tested at label dose. Treatment-related lesions observed in most cattle administered the product included swelling, hyperemia, or necrosis in the subcutaneous tissue of the skin. The administration of LONGRANGE at 3 times the recommended therapeutic dose had no adverse reproductive effects on beef cows at all stages of breeding or pregnancy or on their calves.

Not for use in bulls, as reproductive safety testing has not been conducted in males intended for breeding or actively breeding. Not for use in calves less than 3 months of age because safety testing has not been conducted in calves less than 3 months of age.

HOW SUPPLIED

LONGRANGE is available in three ready-to-use glass bottle sizes. The 50, 250, and 500 mL bottles contain sufficient solution to treat 10, 50, and 100 head of 550 lb (250 kg) cattle, respectively. The 250 and 500 mL bottles are supplied in a removable plastic protector.

STORAGE

Store at 77° F (25° C) with excursions between 59° and 86° F (15° and 30° C). Protect from light.

NADA #141-327, Approved by FDA

Made in Canada.

Manufactured for Merial Limited, Duluth, GA, USA.

®The Cattle Head Logo is a registered trademark, and ™LONGRANGE is a trademark, of Merial.

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1050-2889-02, Rev. 05/2012

Intermediate Individual Quality Assurance – 2020

You own and operate a cow-calf operation in Western Kentucky. You feel like most of the de-wormers you have been using lately just are not getting the job done. You have heard about LongRange and want to see if the extended protection will truly help your parasite problems. Use the LongRange label to answer the 10 questions below. **Circle the best answer.** (10 questions worth 5 points per question for a total of 50 points).

1. LongRange has been proven to protect cattle from lungworm for up to how many days?

- a.) 100 days
- b.) 120 days
- c.) 150 days
- d.) Until winter

2. Which of the following is a true statement regarding the use of LongRange?

- a.) Not for human use.
- b.) For use in dairy calves only.
- c.) Only for cattle in a dry lot.
- d.) All of these

3. How many ml should be administered to a 1100 pound cow?

- a.) 8 ml
- b.) 10 ml
- c.) 12 ml
- d.) Depends on how “wormy” she looks

4. What is the withdrawal time?

- a.) No withdrawal time.
- b.) 48 days of last treatment
- c.) 28 days of last treatment
- d.) 12 days of last treatment

5. What of the following sizes of LongRange could you buy in a ready to use glass bottle?

- a.) 250 ml
- b.) 75 ml
- c.) 600 ml
- d.) Depends on your area

6. It is recommended to store this product at what temperature?

- a.) 100 degrees F
- b.) Below 25 degrees F
- c.) 77 degrees F
- d.) 50 degrees F

7. Giving 3 to 5 times the recommended dose of LongRange (compared to cattle given recommend dose) does which of the following?

- a.) Reduction in average weight gain
- b.) Increase in average weight gain
- c.) Longer period covered against parasites
- d.) Both B and C

8. How should LongRange be administered?

- a.) Pour on
- b.) Orally
- c.) Subcutaneously
- d.) Intermuscular

9. Underdosing of LongRange could result in which of the following?

- a.) Shorter time of protection
- b.) Parasite resistance
- c.) Protection only against Roundworms
- d.) None of the above

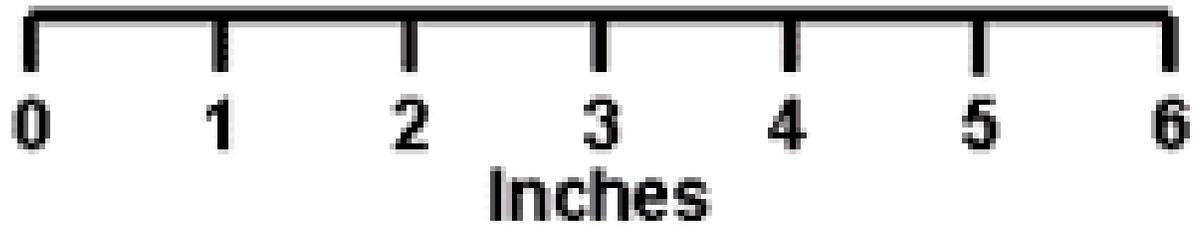
10. LongRange is made where?

- a.) Canada
- b.) India
- c.) United States of America
- d.) Brazil

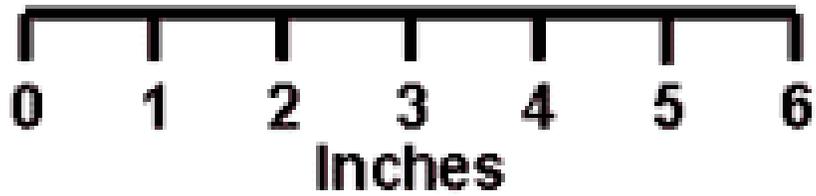
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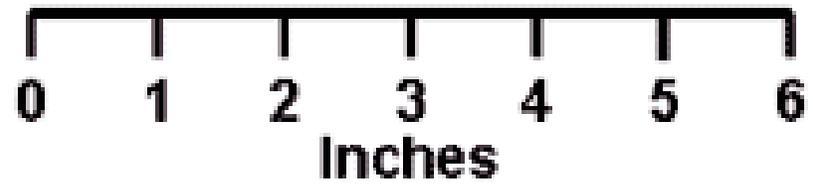
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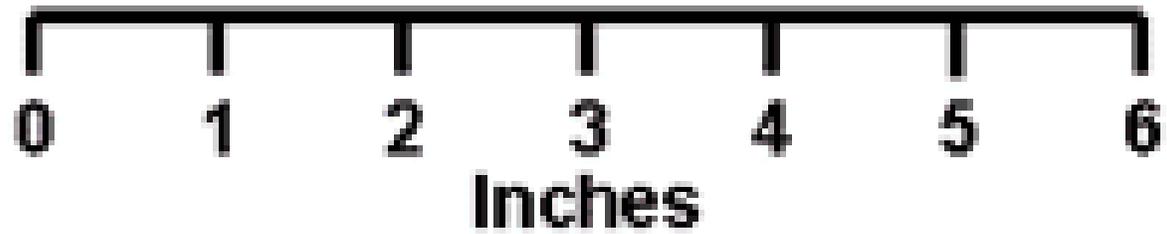
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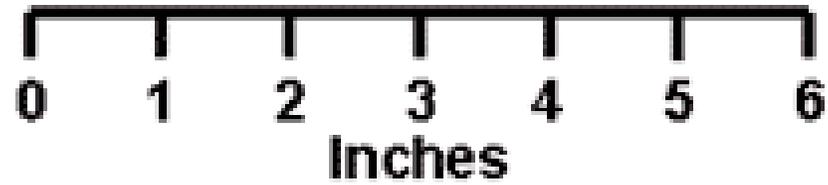
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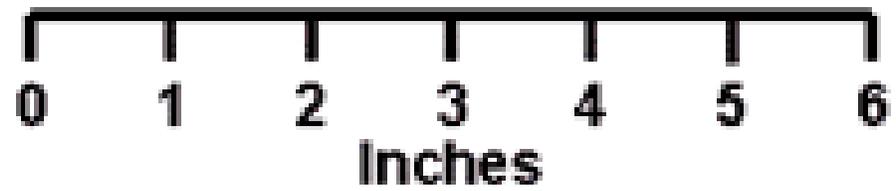
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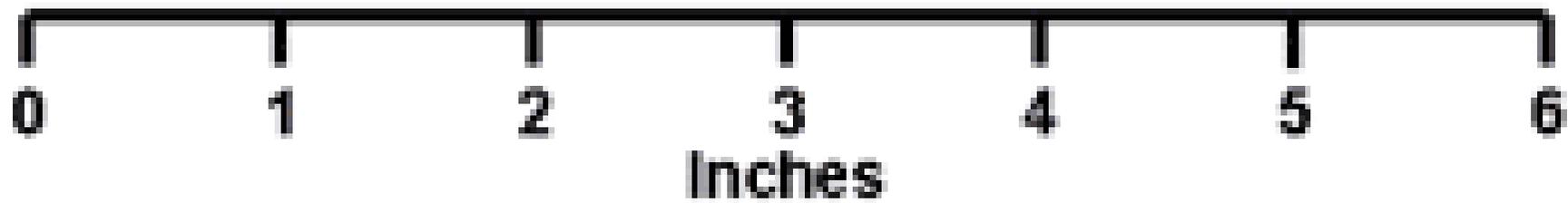
7.



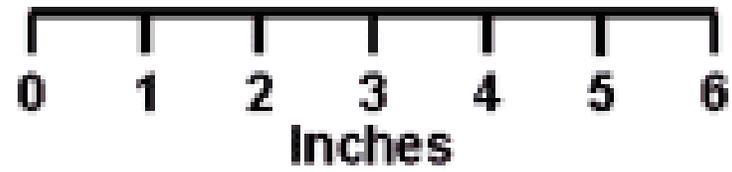
8.



9.



10.



Intermediate Retail Meat Cut Identification – 2020

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

	<u>Retail Cut Name</u>	<u>Species of Cut</u>
1.	35	B
2.	57	L
3.	61	L
4.	70	P
5.	11	B
6.	21	B
7.	54	L
8.	67	P
9.	48	B
10.	72	P

Retail Names – to be used in answer column 1 <u>Intermediates</u>		
<u>Beef Retail Meat Cuts</u>		
1. Beef for stew	17. Sirloin steak, shell	32. Bottom round roast
2. Brisket, point half	18. Sirloin steak, boneless	33. Bottom round steak
3. Brisket, whole	19. Tenderloin steak	34. Eye round roast
4. Arm roast	20. Porterhouse steak	35. Eye round steak
5. Arm roast, boneless	21. T-bone steak	36. Heel of round roast
6. Arm steak	22. Top loin steak	37. Rump roast, boneless
7. Arm steak, boneless	23. Top loin steak, boneless	38. Round steak
8. Blade roast	24. Short ribs	39. Round Steak, boneless
9. Blade steak	25. Skirt steak	40. Tip roast
10. 7-bone roast	26. Rib roast, large end	41. Tip roast, cap off
11. 7-bone steak	27. Rib roast, small end	42. Tip steak
12. Flank steak	28. Rib steak, small end	43. Tip steak, cap off
13. Sirloin steak, flat bone	29. Rib steak, small end, boneless	44. Top round roast
14. Sirloin steak, pin bone	30. Ribeye steak	45. Top round steak
15. Sirloin steak, round bone	31. Ribeye steak	46. Cross cuts
16. Sirloin steak, wedge bone		47. Cross cuts, boneless
		48. Kidney
<u>Lamb Retail Meat Cuts</u>		
49. Breast	55. Sirloin chop	61. Rib roast
50. Breast riblets	56. Leg sirloin half	62. Rib roast, boneless
51. American style roast	57. Loin chop	63. Shanks
52. Leg Center slice	58. Loin double chop	64. Blade chop
53. French style roast	59. Loin roast	65. Neck slice
54. Leg shank half	60. Rib chop	66. Shoulder square cut
<u>Pork Retail Meat Cuts</u>		
67. Fresh ham center slice	74. Center rib roast	81. Arm roast
68. Fresh ham rump portion	75. Center loin roast	82. Arm steak
69. Fresh ham shank portion	76. Loin chop	83. Blade Boston roast
70. Fresh side pork	77. Rib chop	84. Sliced bacon
71. Blade chop	78. Sirloin chop	85. Smoked jowl
72. Blade roast	79. Top loin chop	86. Smoked Canadian
73. Butterfly chop	80. Arm picnic roast	Style Bacon

Species of Cut – to be used in answer column 2 by <u>Intermediates</u>		
(You may use the letter more than once!!)		
B. Beef	L. Lamb	P. Pork

2020 Intermediate Retail Meat Judging Class 1

Name _____ **KEY** _____ Contestant # _____ County _____

Placing is worth a possible 50 points

Placing: 4,2,1,3

Cuts: 2-3-5

Contestant Number _____

Placing Score _____

*University of Kentucky
College of Agriculture
Animal Sciences Department*

Contestant's Name

Address

County

Class: Pork Steaks

A	1 2 3 4	30
B	1 2 4 3	40
C	1 3 2 4	22
D	1 3 4 2	24
E	1 4 2 3	42
F	1 4 3 2	34
G	2 1 3 4	33
H	2 1 4 3	43
I	2 3 1 4	28
J	2 3 4 1	33
K	2 4 1 3	48
L	2 4 3 1	43
M	3 1 2 4	17
N	3 1 4 2	19
O	3 2 1 4	20
P	3 2 4 1	25
Q	3 4 1 2	24
R	3 4 2 1	27
S	4 1 2 3	47
T	4 1 3 2	39
U	4 2 1 3	50
V	4 2 3 1	45
W	4 3 1 2	34
X	4 3 2 1	37

2020 Intermediate Retail Meat Judging Class 2

Name **KEY** _____ Contestant # _____ County _____

Placing is worth a possible 50 points

Placing: 1,3,4,2

Cuts: 3-4-3

Contestant Number _____

Placing Score _____

*University of Kentucky
College of Agriculture
Animal Sciences Department*

Contestant's Name

Address

County

Class 2: Beef Sirloins

A	1 2 3 4	40
B	1 2 4 3	36
C	1 3 2 4	47
D	1 3 4 2	50
E	1 4 2 3	39
F	1 4 3 2	46
G	2 1 3 4	30
H	2 1 4 3	26
I	2 3 1 4	27
J	2 3 4 1	20
K	2 4 1 3	19
L	2 4 3 1	16
M	3 1 2 4	44
N	3 1 4 2	47
O	3 2 1 4	34
P	3 2 4 1	27
Q	3 4 1 2	40
R	3 4 2 1	30
S	4 1 2 3	32
T	4 1 3 2	39
U	4 2 1 3	22
V	4 2 3 1	19
W	4 3 1 2	36
X	4 3 2 1	26

Intermediate Quiz – 2020

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

- 1.) What essential nutrient do sheep require the greatest amount of?
 - a. Protein
 - b. Water
 - c. Minerals
 - d. Vitamins
- 2.) The period of time when a calf is carried inside its mother is called?
 - a. Lactation
 - b. Generation interval
 - c. Gestation
 - d. Postpartum interval
- 3.) Which of the following is a ruminant animal?
 - a. Cow
 - b. Ewe
 - c. Doe
 - d. All of the above
- 4.) Which of the following pig breeds is known as a “primary terminal cross sire”?
 - a. Duroc
 - b. Landrace
 - c. Yorkshire
 - d. Both A and B
- 5.) How many steers are born in the United States each year?
 - a. 10 million
 - b. 100,000 thousand
 - c. 1 thousand
 - d. 0
- 6.) A baby sheep that is born dead is called what?
 - a. Wether
 - b. Stillborn
 - c. Weanling
 - d. Both A and C
- 7.) Which two of these are grades in slaughter cattle?
 - a. Quantity and Fat
 - b. Muscle and Fat
 - c. Quality and Yield
 - d. Quality and Muscle
- 8.) The Kentucky State Fair is held at _____?
 - a. Louisville
 - b. Lexington
 - c. London
 - d. Murray

- 9.) Which management practices are performed on baby piglets?
- a. Ear Notch
 - b. Clip needle teeth
 - c. Give iron injection
 - d. All of the above
- 10.) Which of the following is the poorest quality grade for cattle?
- a. Prime
 - b. Standard
 - c. Choice
 - d. Select
- 11.) Which one of the following hormones maintains pregnancy in farm animals?
- a. Estrogen
 - b. Adrenaline
 - c. Progesterone
 - d. Testosterone
- 12.) What does A.I. stand for (as it pertains to animal agriculture)?
- a. Adjusted information
 - b. Artificial intelligence
 - c. Adjusted intake
 - d. Artificial insemination
- 13.) What is most important when selecting gilts to be used as replacements?
- a. Color and breed
 - b. Structural and reproductive soundness
 - c. Bone and foot size
 - d. Muscle
- 14.) How many piglets are normally in a litter?
- a. 35
 - b. 8 to 12
 - c. 1 to 2
 - d. 20 to 29
- 15.) Which word means "to give birth to calves"?
- a. Kidding
 - b. Farrowing
 - c. Calving
 - d. Breeding
- 16.) What is the first milk from a ewe called?
- a. Lactaid
 - b. Colostrum
 - c. Syrup
 - d. Milk
- 17.) What is the process of eliminating an unwanted animal of poor quality called?
- a. Culling
 - b. Cutting
 - c. Castration
 - d. Confinement
- 18.) What is the average weight when hogs are marketed for slaughter?
- a. 170-190
 - b. 240-280
 - c. 180-200
 - d. 300-350

19.) A porterhouse steak comes from what wholesale cut of a beef animal?

- a. Rib
- b. Loin
- c. Brisket
- d. Round

20.) How many points is a Poland China suppose to have?

- a. 4
- b. 5
- c. 6
- d. 8

21.) What beef cattle breed originates from Japan and is known for their superior meat quality?

- a. Wagyu
- b. Shorthorn
- c. Beefmaster
- d. Angus

22.) Which of the following a hair breed of sheep?

- a. Hampshire
- b. Southdown
- c. Lincoln
- d. Dorper

23.) Number of pounds an animal puts on per day over a certain period of time is called _____?

- a. Average Daily Gain
- b. Conversion
- c. Feed Ration
- d. Feed Efficiency

24.) What is the inflammation, becoming infected and hardening of the udder called?

- a. Constipation
- b. Lactation
- c. Productivity
- d. Mastitis

25.) An animal whose sire and dam are both from the same breed is called a _____?

- a. Grade
- b. Outcross
- c. Crossbred
- d. Purebred

County _____ **KEY** _____

Team Members

Intermediate Team Breeding Exercise – 2020

Your group is working as consultants for a family that is new to the sheep business. The family has children that are wanting to start raising sheep for their livestock projects here in Central Kentucky. They have decided to invest in a flock of Hampshire ewes and plan to raise them long term even after the children are done showing. They understand that raising show wethers and breeding stock at the same time might be difficult, however they want to do both. The goal is to raise all the kids show stock right on the farm. There has not been a budget set for the purchase(s), but keep in mind the family has equipment to buy and payments to be made. Please select 1 or 2 rams (your choice) that would best fit this situation for this family and answer the 10 questions below. Additionally, you will need to discuss your choices with the contest official.

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

Animal ID	Tag #	Birth Type	Codon 171	Weaning Weight (kg)	Post Weaning Weight (kg)	Maternal Milk (kg)	Maternal Lambs Weaned (kg)	Loin Muscle Depth (mm)	Price
1	8658	TW	QR	+3.3	+5.0	+0.3	0.0	+1.4	\$1500
2	8648	TW	RR	+0.3	+1.8	+0.1	+1.0	0.0	\$500
3	8679	TW	RR	+2.9	+4.4	+0.8	+1.5	+0.3	\$1000
4	8678	S	QR	+2.7	+4.9	-0.3	+0.8	+0.8	\$800
5	8697	S	QR	+2.8	+4.8	0.0	+0.9	+1.0	\$900
Breed Average				+2.4	+4.1	+0.2	+0.6	+0.4	

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

1 2 3 4 5

2. Of the codon resistant rams, who is the flattest and lightest muscled?

1 2 3 4 5

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

1 2 3 4 5

4. Which ram has the most breed character?

1 2 3 4 5

5. Which ram should best compliment the ewe base for the production of show wethers?

1 2 3 4 5

6. Of the 5 Rams who is the least structurally correct?

1 2 3 4 5

7. How many Rams have scrapie?

0 1 2 3 4 5

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

0 1 2 3 4 5

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

1 2 3 4 5

10. Who is the tallest fronted longest bodied ram?

1 2 3 4 5

LOT
EXP

256021



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

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

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

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

Store Below 30°C (86°F)

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

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

Not for human use

Restricted Drug (CA) Use only as directed.

Distributed by:
Zoetis Inc.
Kalamazoo, MI 49007

8186000
79-5197-00-9
Made in Brazil



DECTOMAX[®]
(doramectin)

Antiparasitic

1% injectable solution
for cattle and swine

10 mg/mL

Net Contents: 200 mL

NADA #141-061, Approved by FDA

036254Z0

zoetis

Draxxin[®] 25 (tulathromycin injection) Injectable Solution

Antibiotic

25 mg of tulathromycin/mL

For use in suckling calves, dairy calves, veal calves, and swine. Not for use in ruminating cattle.

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

DESCRIPTION

DRAXXIN 25 Injectable Solution is a ready-to-use sterile parenteral preparation containing tulathromycin, a semi-synthetic macrolide antibiotic of the subclass triamliide. Each mL of DRAXXIN 25 contains 25 mg of tulathromycin as the free base in a 50% propylene glycol vehicle, monoethyglycerol (5 mg/mL), citric acid (4.8 mg/mL) with hydrochloric acid and sodium hydroxide added to adjust pH. DRAXXIN 25 consists of an equilibrated mixture of two isomeric forms of tulathromycin in a 9:1 ratio.

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

INDICATIONS

Swine

DRAXXIN 25 Injectable Solution is indicated for the treatment of swine respiratory disease (SRD) associated with *Actinobacillus pleuropneumoniae*, *Pasteurella multocida*, *Bordetella bronchiseptica*, *Haemophilus parasuis*, and *Mycoplasma hyopneumoniae*; and for the control of SRD associated with *Actinobacillus pleuropneumoniae*, *Pasteurella multocida*, and *Mycoplasma hyopneumoniae* in groups of pigs where SRD has been diagnosed.

Suckling Calves, Dairy Calves, and Veal Calves

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

DOSAGE AND ADMINISTRATION

Swine

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

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

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

Calves

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

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

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

CONTRAINDICATIONS

The use of DRAXXIN 25 Injectable Solution is contraindicated in animals previously found to be hypersensitive to the drug.

WARNINGS

FOR USE IN ANIMALS ONLY.

NOT FOR HUMAN USE.

KEEP OUT OF REACH OF CHILDREN.

NOT FOR USE IN CHICKENS OR TURKEYS.

RESIDUE WARNINGS

Swine

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

Calves

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

PRECAUTIONS

Swine

The effects of Draxxin 25 Injectable Solution on porcine reproductive performance, pregnancy, and lactation have not been determined. Intramuscular injection can cause a transient local tissue reaction that may result in trim loss of edible tissue at slaughter.

Cattle

The effects of Draxxin 25 Injectable Solution on bovine reproductive performance, pregnancy, and lactation have not been determined. Subcutaneous injection can cause a transient local tissue reaction that may result in trim loss of edible tissue at slaughter.

ADVERSE REACTIONS

Swine

In one field study, one out of 40 pigs treated with DRAXXIN Injectable Solution (100 mg/mL) at 2.5 mg/kg BW exhibited mild salivation that resolved in less than four hours.

Calves

In one BRD field study, two calves treated with DRAXXIN Injectable Solution (100 mg/mL) at 2.5 mg/kg BW exhibited transient hypersalivation. One of these calves also exhibited transient dyspnea, which may have been related to pneumonia.

Post Approval Experience

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

CLINICAL PHARMACOLOGY

At physiological pH, tulathromycin (a weak base) is approximately 50 times more soluble in hydrophilic than lipophilic media. This solubility profile is consistent with the extracellular pathogen activity typically associated with the macrolides.¹ Markedly higher tulathromycin concentrations are observed in the lung parenchyma as compared to the plasma, and these elevated concentrations can remain in lung tissue for several days beyond that which can be measured in the plasma. However the clinical relevance of these elevated lung concentrations is undetermined.

As a class, macrolides tend to be primarily bacteriostatic, but may be bactericidal against some pathogens.² When acting as a cidal compound, they tend to exhibit concentration independent killing; the rate of bacterial eradication does not change once serum drug concentrations reach 2 to 3 times the minimum inhibitory concentration (MIC) of the targeted pathogen. Under these conditions, the time that serum concentrations remain above the MIC becomes the major determinant of antimicrobial activity. Macrolides also exhibit a post-antibiotic effect (PAE), the duration of which tends to be both drug and pathogen dependent. In general, by increasing the macrolide concentration and the exposure time, the PAE will increase to some maximal duration.³ Tulathromycin is eliminated from the body primarily unchanged via biliary excretion.

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

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

³ Andes D, Anon J, Jacobs MR, Craig WA. (2004). Application of pharmacokinetics and pharmacodynamics to antimicrobial therapy of respiratory tract infections. Clin Lab Med., 24:477-502.

Swine

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

Comparative Bioavailability Summary

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

Calves

Following subcutaneous (SC) administration into the neck of feeder calves at a dosage of 2.5 mg/kg BW, tulathromycin is nearly completely absorbed, with peak plasma concentrations achieved within ~0.25 hr. The volume of distribution exceeds 11 L/kg⁴, which is consistent with extensive tissue binding. This large distribution volume results in a long terminal elimination half-life of more than 100 hours, despite a rapid systemic free drug clearance (170 mL/kg/hr). No pharmacokinetic differences are observed in castrated male versus female calves.

Comparative Bioavailability Summary

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

⁴ Clearance and volume estimates are based on intersubject comparisons of 2.5 mg/kg BW administered by either subcutaneous or intravenous injection.

MICROBIOLOGY

Swine

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

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

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

*The correlation between *in vitro* susceptibility data and clinical effectiveness is unknown.

** The lowest MIC to encompass 50% and 90% of the most susceptible isolates, respectively.

Calves

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

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

Indicated pathogen	Date isolated	No. of isolates	MIC ₅₀ ** (µg/mL)	MIC ₉₀ ** (µg/mL)	MIC range (µg/mL)
<i>Mannheimia haemolytica</i>	1999	642	2	2	0.5 to 64
<i>Pasteurella multocida</i>	1999	221	0.5	1	0.25 to 64
<i>Histophilus somni</i>	1999	36	4	4	1 to 4
<i>Mycoplasma bovis</i>	1999	43	0.125	1	≤ 0.063 to > 64

* The correlation between *in vitro* susceptibility data and clinical effectiveness is unknown.

** The lowest MIC to encompass 50% and 90% of the most susceptible isolates, respectively.

EFFECTIVENESS

Swine

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

In a multi-location field study to evaluate the treatment of naturally occurring SRD, 266 pigs were treated with DRAXXIN Injectable Solution (100 mg/mL). Responses to treatment were compared to saline-treated controls. Success was defined as a pig with normal attitude, normal respiration, and rectal temperature of < 104°F on Day 7. The treatment success rate was significantly greater ($P \leq 0.05$) in DRAXXIN-treated pigs (70.5%) compared to saline-treated pigs (46.1%). *M. hyopneumoniae* was isolated from 106 saline-treated and non-treated sentinel pigs in this study.

Two induced infection model studies were conducted to confirm the effectiveness of DRAXXIN Injectable Solution (100 mg/mL) against *M. hyopneumoniae*. Ten days after inoculation intranasally and intratracheally with a field strain of *M. hyopneumoniae*, 144 pigs were treated with either DRAXXIN (2.5 mg/kg BW) intramuscularly or an equivalent volume of saline. Pigs were euthanized and necropsied 10 days post-treatment. The mean percentage of gross pneumonic lung lesions was statistically significantly lower ($P < 0.0001$) for DRAXXIN-treated pigs than for saline-treated pigs in both studies (8.52% vs. 23.62% and 11.31% vs. 26.42%).

The effectiveness of DRAXXIN Injectable Solution (100 mg/mL) for the control of SRD was evaluated in a multi-location natural infection field study. When at least 15% of the study candidates showed clinical signs of SRD, all pigs were enrolled and treated with DRAXXIN (226 pigs) or saline (227 pigs). Responses to treatment were evaluated on Day 7. Success was defined as a pig with normal attitude, normal respiration, and rectal temperature of < 104°F. The treatment success rate was significantly greater ($P < 0.05$) in DRAXXIN-treated pigs compared to saline-treated pigs (59.2% vs. 41.2%).

Calves

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

BRD - In a multi-location field study, 314 calves with naturally occurring BRD were treated with DRAXXIN Injectable Solution (100 mg/mL). Responses to treatment were compared to saline-treated controls. A cure was defined as a calf with normal attitude/activity, normal respiration, and a rectal temperature of $\leq 104^\circ\text{F}$ on Day 14. The cure rate was significantly higher ($P \leq 0.05$) in DRAXXIN-treated calves (78%) compared to saline-treated calves (24%). There were two BRD-related deaths in the DRAXXIN-treated calves compared to nine BRD-related deaths in the saline-treated calves.

Fifty-two DRAXXIN Injectable Solution (100 mg/mL)-treated calves and 27 saline-treated calves from the multi-location field BRD treatment study had *Mycoplasma bovis* identified in cultures from pre-treatment nasopharyngeal swabs. Of the 52 DRAXXIN-treated calves, 37 (71.2%) calves were categorized as cures and 15 (28.8%) calves were categorized as treatment failures. Of the 27 saline-treated calves, 4 (14.8%) calves were categorized as cures and 23 (85.2%) calves were treatment failures.

A Bayesian meta-analysis was conducted to compare the BRD treatment success rate in young calves (calves weighing 250 lbs or less and fed primarily a milk-based diet) treated with DRAXXIN Injectable Solution (100 mg/mL) to the success rate in older calves (calves weighing more than 250 lbs and fed primarily a roughage and grain-based diet) treated with DRAXXIN. The analysis included data from four BRD treatment effectiveness studies conducted for the approval of DRAXXIN Injectable Solution (100 mg/mL) in the U.S. and nine contemporaneous studies conducted in Europe. The analysis showed that the BRD treatment success rate in young calves was at least as good as the BRD treatment success rate in older calves. As a result, DRAXXIN Injectable Solution (100 mg/mL) was considered effective for the treatment of BRD associated with *M. haemolytica*, *P. multocida*, *H. somni*, and *M. bovis* in suckling calves, dairy calves, and veal calves.

Two induced infection model studies were conducted to confirm the effectiveness of DRAXXIN Injectable Solution (100 mg/mL) against *Mycoplasma bovis*. A total of 166 calves were inoculated intratracheally with field strains of *Mycoplasma bovis*. When calves became pyrexia and had abnormal respiration scores, they were treated with either DRAXXIN (2.5 mg/kg BW) subcutaneously or an equivalent volume of saline. Calves were observed for signs of BRD for 14 days post-treatment, then were euthanized and necropsied. In both studies, mean lung lesion percentages were statistically significantly lower in the DRAXXIN-treated calves compared with saline-treated calves (11.3% vs. 28.9%, $P = 0.0001$ and 15.0% vs. 30.7%, $P < 0.0001$).

ANIMAL SAFETY

Swine

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

Safety studies were conducted in pigs receiving a single intramuscular dose of 25 mg/kg BW, or 3 weekly intramuscular doses of 2.5, 7.5, or 12.5 mg/kg BW (both studies utilized DRAXXIN Injectable Solution (100 mg/mL)). In all groups, transient indications of pain after injection were seen, including restlessness and excessive vocalization. Tremors occurred briefly in one animal receiving 7.5 mg/kg BW. Discoloration and edema of injection site tissues and corresponding histopathologic changes were seen in animals at all dosages and resolved over time. No other drug-related lesions were observed macroscopically or microscopically.

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

Calves

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

A safety study was conducted in feeder calves receiving DRAXXIN Injectable Solution (100 mg/mL) as a single subcutaneous dose of 25 mg/kg BW, or 3 weekly subcutaneous doses of 2.5, 7.5, or 12.5 mg/kg BW. In all groups, transient indications of pain after injection were seen, including head shaking and pawing at the ground. Injection site swelling, discoloration of the subcutaneous tissues at the injection site and corresponding histopathologic changes were seen in animals in all dosage groups. These lesions showed signs of resolving over time. No other drug-related lesions were observed macroscopically or microscopically.

An exploratory study was conducted in feeder calves receiving DRAXXIN Injectable Solution (100 mg/mL) as a single subcutaneous dose of 10, 12.5, or 15 mg/kg BW. Macroscopically, no lesions were observed. Microscopically, minimal to mild myocardial degeneration was seen in one of six calves administered 12.5 mg/kg BW and two of six calves administered 15 mg/kg BW.

A safety study was conducted in preruminant calves 13 to 27 days of age receiving DRAXXIN Injectable Solution (100 mg/mL) at 2.5 mg/kg BW or 7.5 mg/kg BW once subcutaneously. With the exception of minimal to mild injection site reactions, no drug-related clinical signs or other lesions were observed macroscopically or microscopically.

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

STORAGE CONDITIONS:

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

HOW SUPPLIED

DRAXXIN 25 Injectable Solution is available in the following package sizes:

50 mL vial
100 mL vial
250 mL vial

NADA 141-349, Approved by FDA

zoetis

Distributed by:
Zoetis Inc.
Kalamazoo, MI 49007

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

For additional DRAXXIN 25 product information call: **1-888-DRAXXIN** or go to **www.DRAXXIN.com**



Made in Brazil

060005AAA&P
Revised: September 2014

MERCK ANIMAL HEALTH

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Every effort has been made to ensure the accuracy of the information published. However, it remains the responsibility of the readers to familiarize themselves with the product information contained on the USA product label or package insert.

Banamine®-S



Intervet/Merck Animal Health

PRODUCT INFORMATION

NADA #101-479, Approved by FDA.

(flunixin meglumine injection)

50 mg/mL

Veterinary

For intramuscular use in swine.

Not for use in breeding swine.

CAUTION

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

DESCRIPTION

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

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

CLINICAL PHARMACOLOGY

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

Flunixin is known to persist in inflammatory tissues¹ and is associated with anti-inflammatory properties which extend well beyond the period associated with detectable plasma drug concentrations². Therefore, prediction of drug concentrations based upon estimated plasma terminal elimination half-life will likely underestimate both the duration of drug action and the concentration of drug remaining at the site of activity.

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

INDICATION

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

DOSE AND ADMINISTRATION

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

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

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

CONTRAINDICATIONS

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

RESIDUE WARNINGS

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

PRECAUTIONS

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

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

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

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

ADVERSE REACTIONS

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

ANIMAL SAFETY

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

HOW SUPPLIED

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

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

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

1. Lees P, Higgins AJ. Flunixin inhibits prostaglandin E₂ production in equine inflammation. *Res Vet Sci.* 1984; 37:347-349.
2. Odensvik K. Pharmacokinetics of flunixin and its effect on prostaglandin F_{2α} metabolite concentrations after oral and intravenous administration in heifers. *J Vet Pharmacol Ther.* 1995; 18:254-259.

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Rev. 01/17

180996 R3

CPN: 1047251.2

County _____ **KEY** _____

Team Members _____

Intermediate Team Quality Assurance Exercise – 2020

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

NOTES ON TREATMENTS:

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

- 1) Which medication is a parasiticide? **Dectomax**
- 2) When giving Banamine-S, what's the largest amount that should be administered in 1 site? **10** mL
- 3) Which of the medications should not be given to sheep? **None of the medications should be given**
- 4) Which of the medications has an adverse reaction of hogs with mild salivation that resolved in less than four hours? **Draxxin 25**
- 5) Which of the medications is made in Germany? **Banamine - S**

[OVER]

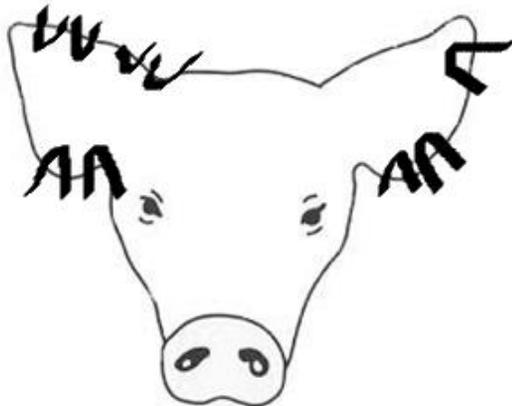
TREATMENT RECORD

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

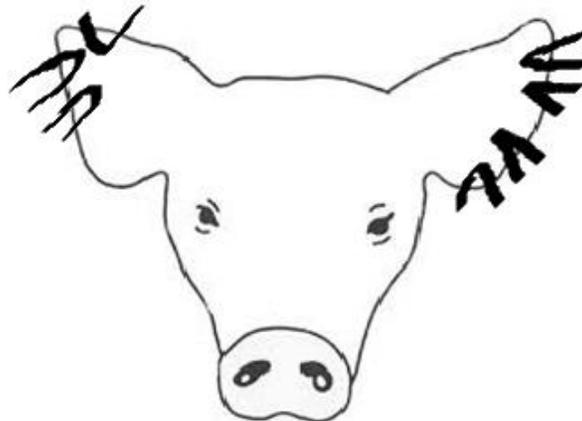
Intramuscular = IM
 Subcutaneous = SC
 Intravenous = IV
 Topical = T
 Added to feed = F

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

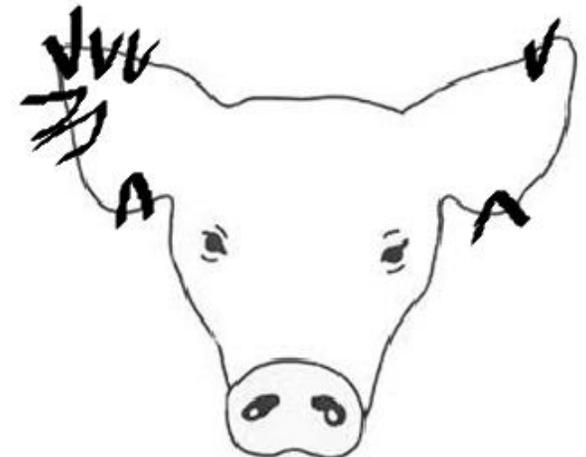
74-5



15-8



106-10



CALENDAR

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