3.
10.
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).

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

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

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

- **Goat Breeds**
  17. Alpine
  18. American Cashmere
  19. Angora
  20. Boer
  21. Kiko
  22. Lamancha
  23. Nubian
  24. Oberhasli
  25. Pygmy
  26. Saanen
  27. Spanish
  28. Tennessee Fainting
  29. Toggenburg
  30. Cheviot
  31. Columbia
  32. Corriedale
  33. Dorper
  34. Dorset
  35. Finnsheep
  36. Hampshire
  37. Katahdin
  38. Merino
  39. Montadale
  40. Oxford
  41. Polled Dorset
  42. Rambouillet
  43. Romney
  44. Southdown
  45. Suffolk
  46. White Face Cross

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

- A. Tees River Valley in England
- B. U.S. primarily at USDA Experiment Station in Jeanerette, LA.
- C. Aberdeen and Angus Counties of Scotland
- D. Cheviot Hills of the border of England and Scotland
- E. Suffolk, England
- F. England
- G. Danish descendants
- H. Developed in Butler and Warren Counties, OH, US
- I. Maine, U.S.
- J. Descendants of goats brought to America by Spanish Explorers
9.
Intermediate Livestock and Meat Equipment Identification – 2020

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

<table>
<thead>
<tr>
<th>Equipment Name</th>
<th>Equipment Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 34</td>
<td>O</td>
</tr>
<tr>
<td>2. 11</td>
<td>D</td>
</tr>
<tr>
<td>3. 12</td>
<td>P</td>
</tr>
<tr>
<td>4. 5</td>
<td>A</td>
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<tr>
<td>5. 36</td>
<td>G</td>
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<tr>
<td>6. 35</td>
<td>B</td>
</tr>
<tr>
<td>7. 33</td>
<td>K</td>
</tr>
<tr>
<td>8. 22</td>
<td>I</td>
</tr>
<tr>
<td>9. 39</td>
<td>M</td>
</tr>
<tr>
<td>10. 9</td>
<td>N</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Equipment Names – to be used in answer column 1 by Intermediates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Livestock Equipment</td>
</tr>
<tr>
<td>1. All Weather Paintstik.</td>
</tr>
<tr>
<td>2. Artificial insemination pipettes (Swine)</td>
</tr>
<tr>
<td>3. Bowl waterer</td>
</tr>
<tr>
<td>4. Balling gun</td>
</tr>
<tr>
<td>5. Barnes dehorner</td>
</tr>
<tr>
<td>6. Cattle clippers</td>
</tr>
<tr>
<td>7. Clipper comb</td>
</tr>
<tr>
<td>8. Clipper cutter</td>
</tr>
<tr>
<td>9. Currycomb</td>
</tr>
<tr>
<td>10. Disposable syringes</td>
</tr>
<tr>
<td>11. Drench gun</td>
</tr>
<tr>
<td>12. Ear notchers</td>
</tr>
<tr>
<td>13. Ear tag</td>
</tr>
<tr>
<td>14. Elastrator</td>
</tr>
<tr>
<td>15. Electric branding iron</td>
</tr>
<tr>
<td>16. Electric docker</td>
</tr>
<tr>
<td>17. Electric fence wire roller</td>
</tr>
<tr>
<td>18. Electric sheep shears</td>
</tr>
<tr>
<td>19. Emasculatome (Burdizzo)</td>
</tr>
<tr>
<td>20. Ewe prolapse retainer</td>
</tr>
<tr>
<td>21. Fencing pliers</td>
</tr>
<tr>
<td>22. Foot rot shears</td>
</tr>
<tr>
<td>23. Freeze branding iron</td>
</tr>
<tr>
<td>24. Hanging Scale</td>
</tr>
<tr>
<td>25. Hand sheep shears</td>
</tr>
<tr>
<td>26. Lamb tube feeder</td>
</tr>
<tr>
<td>27. Needle teeth nippers</td>
</tr>
<tr>
<td>28. Nipple waterer</td>
</tr>
<tr>
<td>29. Nose ring</td>
</tr>
<tr>
<td>30. Nose ring pliers</td>
</tr>
<tr>
<td>31. Obstetrical (O.B.) chain</td>
</tr>
<tr>
<td>32. Plastic Sleeve</td>
</tr>
<tr>
<td>33. Pistol Grip Syringe</td>
</tr>
<tr>
<td>34. Ralgro pellet injector</td>
</tr>
<tr>
<td>35. Ram marking harness</td>
</tr>
<tr>
<td>36. Rope Halter – Sheep</td>
</tr>
<tr>
<td>37. Rope Halter – Cattle</td>
</tr>
<tr>
<td>38. Rumen magnate</td>
</tr>
<tr>
<td>39. Scalpels</td>
</tr>
<tr>
<td>40. Scotch Comb</td>
</tr>
<tr>
<td>41. Semen Storage Tank</td>
</tr>
<tr>
<td>42. Slap tattoo</td>
</tr>
<tr>
<td>43. SYNOVEX Implant cartridge</td>
</tr>
<tr>
<td>44. SYNOVEX Implant gun</td>
</tr>
<tr>
<td>45. T-Post Electric Fence Insulator</td>
</tr>
<tr>
<td>46. Water Heater</td>
</tr>
<tr>
<td>47. Wood post electric fence insulator</td>
</tr>
<tr>
<td>48. Wool Card</td>
</tr>
<tr>
<td>49. Backfat ruler</td>
</tr>
<tr>
<td>50. Band saw</td>
</tr>
<tr>
<td>51. Bone dust scraper</td>
</tr>
<tr>
<td>52. Boning knife</td>
</tr>
<tr>
<td>53. Bowl chopper</td>
</tr>
<tr>
<td>54. Dehairing machine</td>
</tr>
<tr>
<td>55. Electrical stunner</td>
</tr>
<tr>
<td>56. Emulsifier</td>
</tr>
<tr>
<td>57. Ham net</td>
</tr>
<tr>
<td>58. Hand saw</td>
</tr>
<tr>
<td>59. Hard hat</td>
</tr>
<tr>
<td>60. Loin eye area grid</td>
</tr>
<tr>
<td>61. Meat grinder</td>
</tr>
<tr>
<td>62. Meat grinder auger</td>
</tr>
<tr>
<td>63. Meat grinder knife</td>
</tr>
<tr>
<td>64. Meat grinder plate</td>
</tr>
<tr>
<td>65. Meat grinder stuffing rod</td>
</tr>
<tr>
<td>66. Meat hook</td>
</tr>
<tr>
<td>67. Meat tenderizer</td>
</tr>
<tr>
<td>68. Meat trolley</td>
</tr>
<tr>
<td>69. Metal knife scabbard</td>
</tr>
<tr>
<td>70. Rubber apron</td>
</tr>
<tr>
<td>71. Sharpening steel</td>
</tr>
<tr>
<td>72. Smoke house</td>
</tr>
<tr>
<td>73. Thermometer</td>
</tr>
<tr>
<td>74. Tumbler</td>
</tr>
<tr>
<td>75. Vacuum sausage stuffer</td>
</tr>
<tr>
<td>76. Wells saw</td>
</tr>
</tbody>
</table>

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

A. Used to dehorn calves, sheep and goats.
B. A device placed on rams that shows when a ewe has been serviced.
C. Used to chop meat for sausages.
D. Used to administer precise amounts of liquid medications to cattle, sheep, goats and horses. The hooked portion is placed in the animal’s mouth to administer the liquid medication.
E. An instrument used for the bloodless castration (young male calves, lambs, and goats) and docking of tails (young lambs and goats).
F. Used to card (comb or rake) the wool on sheep prior to shearing.
G. Used to lead (walk) sheep.
H. Device used to deposit boar semen into reproductive tract of a gilt or sow.
I. Used to trim hooves of cattle, sheep, and goats to help prevent foot disease.
J. An automatic waterer used to provide clean, fresh water to pigs.
K. Used to give vaccinations to multiple animals without needing to reload the syringe with more vaccine.
L. An instrument used for the bloodless castration of young male calves, lambs, and goats by severing (crushing) the testicular cord.
M. Used by veterinarians for various surgical procedures, and by farmers for various health related and management practices (such as castration).
N. Used to removed dirt and loose hair from cattle when grooming.
O. Used to insert a RALGRO pellet (for growth promotion) under loose skin and above the cartilage on the back side of a beef calf’s ear.
P. Used to clip small notches in a pig’s ear to provide a form of permanent individual pig identification.
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).

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

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

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

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

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

- B. By-product feed
- C. Carbohydrate (energy)
- D. Defluorinated rock phosphate
- E. Defluorinated rock phosphate
- F. Fats (energy)
- M. Mineral
- P. Protein
- V. Vitamin
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

<table>
<thead>
<tr>
<th>Contestant Number</th>
<th>Placing Score</th>
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<tbody>
<tr>
<td></td>
<td>A 1 2 3 4 47</td>
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<tr>
<td></td>
<td>B 1 2 4 3 45</td>
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<tr>
<td></td>
<td>C 1 3 2 4 38</td>
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<td>D 1 3 4 2 27</td>
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<td>E 1 4 2 3 34</td>
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<td></td>
<td>F 1 4 3 2 25</td>
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<td>G 2 1 3 4 50</td>
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<td>H 2 1 4 3 48</td>
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<td>I 2 3 1 4 44</td>
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<td>W 4 3 1 2 11</td>
</tr>
<tr>
<td></td>
<td>X 4 3 2 1 14</td>
</tr>
</tbody>
</table>

[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____
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 tracetin (lp), along with 50 mg of poly-lactic-co-glycolic acid (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’-epiacetylamino-avermectin B1, which differs by a single methylene group at C21.

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:

<table>
<thead>
<tr>
<th>Gastrointestinal Roundworms</th>
<th>Lungworms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperia oncophora – Adults and L4</td>
<td>Dictyocaulus viviparus – Adults</td>
</tr>
<tr>
<td>Cooperia punctata – Adults</td>
<td>Trichostrongylus axei</td>
</tr>
<tr>
<td>Cooperia croceus – Adults and L4</td>
<td>Ostertagia ostertagi</td>
</tr>
<tr>
<td>Haemonchus placei – Adults</td>
<td>Ostertagia larysa – Adults</td>
</tr>
<tr>
<td>Oesophagostomum radiatum – Adults</td>
<td>Ostertagia ostertagi – Adults, L4, and inhibited L4</td>
</tr>
<tr>
<td>Trichostrongylus axei – Adults and L4</td>
<td>Trichostrongylus colubriformis – Adults</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Parasites</th>
<th>Durations of Persistent Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastrointestinal Roundworms</td>
<td></td>
</tr>
<tr>
<td>Cooperia oncophora</td>
<td>100 days</td>
</tr>
<tr>
<td>Cooperia punctata</td>
<td>100 days</td>
</tr>
<tr>
<td>Haemonchus placei</td>
<td>120 days</td>
</tr>
<tr>
<td>Oesophagostomum radiatum</td>
<td>120 days</td>
</tr>
<tr>
<td>Ostertagia larysa</td>
<td>120 days</td>
</tr>
<tr>
<td>Ostertagia ostertagi</td>
<td>120 days</td>
</tr>
<tr>
<td>Trichostrongylus axei</td>
<td>100 days</td>
</tr>
<tr>
<td>Lungworms</td>
<td></td>
</tr>
<tr>
<td>Dictyocaulus viviparus</td>
<td>150 days</td>
</tr>
</tbody>
</table>

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 polycarbonate 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 Merel. To obtain compatible equipment, contact Merel at 1-888-617-4251 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 Merel at 1-888-617-4251. 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 remission of eddle 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. Support 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 Haemonchus larva (cattle grubs) at the period when these grubs are in vital areas may cause undesirable host-parasite reactions, including the possibility of fatalities. Killing Haemonchus linearum when it is in the tissue surrounding the esophagus (glue) may cause salivation and bloating; 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 enters and inhibits L4 larvae of Haemonchus placei. Other 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, hypervemia, 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. ©2012 Merial. All rights reserved.

Long Range (eprinomectin). 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, hypervemia, 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.

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 device. 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 (Lanuse et al., 1997; Lefchitz et al., 1999; Lefchitz et al., 2004; Shopp et al., 1996). Lefchitz 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)
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. LongeRange 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 LongeRange 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 recommended 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
2.
6.
# 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. Intermediate\textsuperscript{s} provide answers for retail cut name and species of cut. Each question is worth 5 points (100 points total for Intermediates).

<table>
<thead>
<tr>
<th>Retail Cut Name</th>
<th>Species of Cut</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Retail Names – to be used in answer column 1 Intermediate\textsuperscript{s}

### Beef Retail Meat Cuts

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

### Lamb Retail Meat Cuts

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

### Pork Retail Meat Cuts

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

## Species of Cut – to be used in answer column 2 by Intermediate\textsuperscript{s}

(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**

<table>
<thead>
<tr>
<th>Contestant's Name</th>
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<th>B 1 2 4 3</th>
<th>C 1 3 2 4</th>
<th>D 1 3 4 2</th>
<th>E 1 4 2 3</th>
<th>F 1 4 3 2</th>
<th>G 2 1 3 4</th>
<th>H 2 1 4 3</th>
<th>I 2 3 1 4</th>
<th>J 2 3 4 1</th>
<th>K 2 4 1 3</th>
<th>L 2 4 3 1</th>
<th>M 3 1 2 4</th>
<th>N 3 1 4 2</th>
<th>O 3 2 1 4</th>
<th>P 3 2 4 1</th>
<th>Q 3 4 1 2</th>
<th>R 3 4 2 1</th>
<th>S 4 1 2 3</th>
<th>T 4 1 3 2</th>
<th>U 4 2 1 3</th>
<th>V 4 2 3 1</th>
<th>W 4 3 1 2</th>
<th>X 4 3 2 1</th>
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2020 Intermediate Retail Meat Judging Class 2

Placing is worth a possible 50 points
Placing: 1,3,4,2
Cuts: 3-4-3

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<td>W 4 3 1 2</td>
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<tr>
<td>X 4 3 2 1</td>
<td>26</td>
</tr>
</tbody>
</table>
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
**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.]

<table>
<thead>
<tr>
<th>Animal ID</th>
<th>Tag #</th>
<th>Birth Type</th>
<th>Codon 171</th>
<th>Weaning Weight (kg)</th>
<th>Post Weaning Weight (kg)</th>
<th>Maternal Milk (kg)</th>
<th>Maternal Lambs Weaned (kg)</th>
<th>Loin Muscle Depth (mm)</th>
<th>Price</th>
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<td>+0.4</td>
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</tr>
</tbody>
</table>
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
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.
**Draxxin® 25**

(tulathromycin injection)

**Injectable Solution**

**Antibiotic**

25 mg of tulathromycin/mL.

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

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

**DESCRIPTION**

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

**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, Pasteurella bronchiseptica, 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.

**DOSE 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)

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<th>Animal Weight (Pounds)</th>
<th>Dose Volume (mL)</th>
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<tr>
<td>30</td>
<td>1.4</td>
</tr>
<tr>
<td>50</td>
<td>2.3</td>
</tr>
<tr>
<td>75</td>
<td>3.2</td>
</tr>
<tr>
<td>100</td>
<td>4.0</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>Animal Weight (Pounds)</th>
<th>Dose Volume (mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>2.3</td>
</tr>
<tr>
<td>70</td>
<td>4.5</td>
</tr>
<tr>
<td>150</td>
<td>7.0</td>
</tr>
<tr>
<td>200</td>
<td>9.0</td>
</tr>
<tr>
<td>250</td>
<td>11.5</td>
</tr>
</tbody>
</table>

**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.

Calves

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 elevation of transaminases/alkaline phosphatase. 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/AnimalVets.

**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.** Markedly higher tulathromycin concentrations are observed in the lung parenchyma as compared to serum. Despite slightly lower peak concentrations with DRAXXIN 25 Injectable Solution, a single IM dose of 2.5 mg/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 calves by SC injection at a dose of 2.5 mg/kg tulathromycin/kg BW.

**Comparative Bioavailability Summary**

Despite slightly lower peak concentrations with DRAXXIN 25 Injectable Solution, a single IM dose of 2.5 mg/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/kg tulathromycin/kg BW.

**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/kg tulathromycin/kg BW.

**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-A1 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. Tulfazolin Minimum inhibitory concentration (MIC) values* for indicated pathogens isolated from field studies evaluating SRD in the U.S. and Canada.

<table>
<thead>
<tr>
<th>Indicated pathogen</th>
<th>Date isolated</th>
<th>No. of isolates</th>
<th>MIC50** (μg/mL)</th>
<th>MIC90** (μg/mL)</th>
<th>MIC range (μg/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actinobacillus pleuropneumonia</td>
<td>2000-2002</td>
<td>135</td>
<td>16</td>
<td>32</td>
<td>16 to 32</td>
</tr>
<tr>
<td>Pasteurella multocida</td>
<td>2007-2008</td>
<td>88</td>
<td>16</td>
<td>32</td>
<td>4 to 32</td>
</tr>
<tr>
<td>Haemophilus parasuis</td>
<td>2000-2002</td>
<td>31</td>
<td>2</td>
<td>0.25 to &gt; 64</td>
<td></td>
</tr>
<tr>
<td>Pasteurella multocida</td>
<td>2000-2002</td>
<td>55</td>
<td>1</td>
<td>0.5 to &gt; 64</td>
<td></td>
</tr>
<tr>
<td>Pasteurella multocida</td>
<td>2007-2008</td>
<td>40</td>
<td>1</td>
<td>0.03 to 2</td>
<td></td>
</tr>
<tr>
<td>Mycoplasma bronchiseptica</td>
<td>2000-2002</td>
<td>42</td>
<td>4</td>
<td>2.68 to &gt; 64</td>
<td></td>
</tr>
</tbody>
</table>

*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 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 activity, normal respiration, and rectal temperature of ≤104°F on Day 14. The treatment success rate was significantly greater (P ≤ 0.05) in DRAXXIN-treated pigs (78.2%) compared to saline-treated pigs (24.8%).

In two induced infection model studies were conducted to confirm the effectiveness of DRAXXIN Injectable Solution (100 mg/mL) against M. haemolytica. Ten days after inoculation intratracheally and intranasally with a field strain of M. haemolytica, 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 pneumatic lung lesions was statistically significantly lower (P < 0.0001) for DRAXXIN-treated pigs than for saline-treated pigs in both studies (85.2% 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 (225 pigs) or saline (227 pigs). Responses to treatment were evaluated on Day 7. Success was defined as a pig with normal activity, 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 support the effectiveness for 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 feeders 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 prepubertal 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.
Every effort has been made to ensure the accuracy of the information published. However, it remains the responsibility of the readers to familiarize themselves with the product information contained on the USA product label or package insert.

Banamine®-S

Intervet/Merck Animal Health

PRODUCT INFORMATION

NADA #101-479, Approved by FDA.

(flunixin meglumine injection)

50 mg/mL

Veterinary

For intramuscular use in swine.

Not for use in breeding swine.

CAUTION

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

DESCRIPTION

Each milliliter of BANAMINE-S (flunixin meglumine injection) contains 50 mg flunixin (equivalent to 83 mg flunixin meglumine), 0.1 mg edetate disodium, 2.5 mg sodium
formaldehyde sulfoxylate, 4.0 mg diethanolamine, 207.2 mg propylene glycol; 5.0 mg phenol as preservative, hydrochloric acid, water for injection q.s.

**CLINICAL PHARMACOLOGY**

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

Flunixin is known to persist in inflammatory tissues and is associated with anti-inflammatory properties which extend well beyond the period associated with detectable plasma drug concentrations. 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.


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

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Made in Germany

Rev. 01/17

180996 R3

**CPN:** 1047251.2
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**
## TREATMENT RECORD

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

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.
<table>
<thead>
<tr>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 1</td>
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<td>3</td>
<td>4</td>
<td>5</td>
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