FLUNIXAMINE®: A COMPETITIVELY PRICED WAY TO PROVIDE RELIEF FOR CATTLE AND HORSES

BEEF: FOR CONTROL OF FEVER CAUSED BY BRD
FLUNIXAMINE® (flunixin meglumine) Injectable Solution is indicated for the control of pyrexia associated with bovine respiratory disease (BRD).

DAIRY: FOR CONTROL OF PYREXIA DUE TO MASTITIS
FLUNIXAMINE is indicated for the control of pyrexia associated with endotoxemia and acute bovine mastitis. It also is indicated for the control of inflammation in endotoxemia.

HORSES: FOR PAIN RELIEF
FLUNIXAMINE is recommended for the alleviation of inflammation and pain associated with musculoskeletal disorders. It also is recommended for the alleviation of visceral pain associated with colic.

Important Safety Information: Cattle must not be slaughtered for human consumption within four days of the last treatment. Milk that has been taken during treatment and for 36 hours after the last treatment must not be used for food. Not for use in dry dairy cows. A withdrawal period has not been established for this product in pre-ruminating calves. Do not use in calves to be processed for veal. Do not use in bulls intended for breeding. Not for use in horses intended for food. Approved only for intravenous administration in cattle. Intramuscular administration has resulted in violative residues in the edible tissues of cattle sent to slaughter.

Flunixamine®
(flunixin meglumine)

For more information, contact your veterinarian or your Zoetis representative. For additional product support, please call Veterinary Medical Information and Product Support at 888-ZOETIS1 (888-963-8471).
Flunixamine®
(Flunixin meglumine)

**Intramuscular Solution**
50 mg/mL

**VETERINARY**
For Intravenous or Intramuscular Use in Horses and for Intravenous Use in Beef and Dairy Cattle. Not for Use in Dry Dairy Cows and Veal Calves.

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

**DESCRIPTION**
Each milliliter of FLUNIXAMINE Injectable Solution contains flunixin meglumine equivalent to 50 mg flunixin, 0.1 mg edetate disodium, 2.2 mg sodium formaldelyde sulfoxylate, 4.0 mg diethanolamine, 207.2 mg propylene glycol, 5.0 mg phenol as preservative, hydrochloric acid, water for injection q.s.

**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 paw test.

Horse: Flunixin is four times as potent on a mg-per-mg basis as phenylbutazone as measured by the reduction in lameness and swelling in the horse. Plasma half-life in horse serum is 1.6 hours following a single dose of 1.1 mg/kg. Measurable amounts are detectable in horse plasma at 8 hours postinjection.

Cattle: Flunixin meglumine is a weak acid (pKa= 5.82) which exhibits a high degree of plasma protein binding (approximately 95%). However, free (unbound) drug appears to readily partition into body tissues (Vt: predictions range from 297 to 782 mL/kg). Total body water is approximately equal to 570 mL/kg. In cattle, elimination occurs primarily through biliary excretion. This may, at least in part, explain the existence of multiple peaks in the blood concentration/time profile following IV administration.

In healthy cattle, total body clearance has been reported to range from 90 to 151 mL/hr/kg. These studies also report a large discrepancy between the volume of distribution at steady state (Vd) and the volume of distribution associated with the terminal elimination phase (Vt). This discrepancy appears to be attributable to extended drug elimination from a deep compartment. The terminal half-life has been shown to vary from 3.1 to 8.2 hours.

Flunixin persists in inflammatory tissues and is associated with pathological inflammation which extends well beyond the period associated with detectable plasma drug concentrations. These observations account for the counter-clockwise hysteresis associated with flunixin’s pharmacokinetic/pharmacodynamic relationships.

Therefore, prediction of drug concentrations based upon the 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.

**INDICATIONS**
Horse: FLUNIXAMINE Injectable Solution is recommended for the alleviation of inflammation and pain associated with musculoskeletal disorders in the horse. It is also recommended for the alleviation of visceral pain associated with colic in the horse.

Cattle: FLUNIXAMINE Injectable Solution is indicated for the control of pyrexia associated with bovine respiratory disease, endotoxemia and acute bovine mastitis. FLUNIXAMINE Injectable Solution is also indicated for the control of inflammation in endotoxemia.

**DOSE AND ADMINISTRATION**
Horse: The recommended dose for musculoskeletal disorders is 0.5 mg per pound of body weight once daily. Treatment may be given by intravenous or intramuscular injection and repeated for up to 5 days. Studies show onset of activity is within 2 hours. Peak response occurs between 12 and 16 hours and duration of activity is 24-36 hours.

Cattle: The recommended dose for the alleviation of pain associated with equine colic is 0.5 mg per pound of body weight. Intravenous administration is recommended for prompt relief. Clinical studies show pain is alleviated in less than 15 minutes in many cases. Treatment may be repeated when signs of colic occur. In feeding clinical studies approximately 10% of the horses required one or two additional treatments. The cause of colic should be determined and treated with concomitant therapy.

Cattle: The recommended dose for control of pyrexia associated with bovine respiratory disease and endotoxemia and control of inflammation in endotoxemia is 1.1 to 2.2 mg/kg (0.5 to 1.0 mg/lb; 1 to 2 mL per 100 lbs) of body weight given by slow intravenous administration either once a day as a single dose or divided into two doses administered at 12-hour intervals for up to 3 days. The total daily dose should not exceed 2.2 mg/kg (1.0 mg/lb) of body weight. Avoid rapid intravenous administration of the drug.

The recommended dose for acute bovine mastitis is 2.2 mg/kg (1 mL/kg; 2 mL per 100 lbs) of body weight given once by intravenous administration.

**CONTRAINDICATIONS**
Horse: There are no known contraindications to this drug in cattles when used as directed. Intra-arterial injection should be avoided. Horses inadvertently injected intra-arterially can show adverse reactions. Signs can be ataxia, incoordination, hyperventilation, hysteria, and muscle weakness. Signs are transient and disappear without antidotal medication within a few minutes. Do not use in horses showing hypersensitivity to flunixin meglumine.

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

**RESIDUE WARNINGS:**
Cattle: Must not be slaughtered for human consumption within 4 days of the last treatment at the dosage that has been taken during treatment and for 36 hours after the last treatment must not be used for food. Not for use in dry dairy cows. A withdrawal period has not been established for this product in prepubertal calves. Do not use in calves to be processed for veal. Not for use in horses intended for food. No injection site irritation was observed following intramuscular injection of the 0.5 mg/lb recommended dose. Some irritation was observed following a 3-fold dose administered intramuscularly.

Cattle: No flunixin-related changes (adverse reactions) were noted in cattle administered a 1X (2.2 mg/kg; 1.0 mg/lb) dose for 9 days (three times the maximum clinical duration). Minimal toxicity manifested itself at moderately elevated doses (2X and 5X) when flunixin was administered daily for 9 days, with occasional findings of blood in the feces and/or urine. Discontinue use of flunixin or fecal blood are observed.

**ADVERSE REACTIONS**
In horses, isolated reports of local reactions following intramuscular injection, particularly in the neck, have been received. These include localized swelling, sweating, induration, and stiffness. In rare instances in horses oral, fatal or nonfatal clostridial infections or other infections have been reported in association with intramuscular use of flunixin meglumine. In horses and cattle, rare instances of anaphylactic-like reactions, some of which have been fatal, have been reported, primarily following intravenous use.

**HOW SUPPLIED**
FLUNIXAMINE Injectable Solution, 50 mg/mL, is available in 100 mL and 250 mL multi-dose vials. Store between 2° and 30°C (36° and 86°F). PROTECT FROM FREEZING.

**REFERENCES**

**DISPENED BY:**
Pfizer Animal Health
Distributed by: Bimeda-MTC Animal Health Inc.
Cambridge, ON Canada

**Distributed in Canada**
For Intravenous or Intramuscular Use in Horses and for Intravenous Use in Beef and Dairy Cattle. Not for Use in Dry Dairy Cows and Veal Calves. Read accompanying directions carefully. Store between 2° and 30°C (36° and 86°F). PROTECT FROM FREEZING.