

Date of Approval: March 10, 2011

FREEDOM OF INFORMATION SUMMARY

SUPPLEMENTAL NEW ANIMAL DRUG APPLICATION

NADA 141-068

BAYTRIL 100

Enrofloxacin

Injectable Solution

Beef and Non-Lactating Dairy Cattle

For the treatment of bovine respiratory disease (BRD) associated with *Mycoplasma bovis* in beef and non-lactating dairy cattle, when administered as a dose of 7.5 to 12.5 mg/kg body weight (3.4 to 5.7 mL/100 lb BW) once by subcutaneous injection.

Sponsored by:

Bayer HealthCare LLC
Animal Health Division

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I. GENERAL INFORMATION:

- A. File Number:** NADA 141-068
- B. Sponsor:** Bayer HealthCare LLC
Animal Health Division
P.O. Box 390
Shawnee Mission, KS 66201

Drug Labeler Code: 000859
- C. Proprietary Name:** BAYTRIL 100
- D. Established Name:** Enrofloxacin
- E. Pharmacological Category:** Antimicrobial
- F. Dosage Form:** Injectable solution
- G. Amount of Active Ingredient:** 100 mg/mL
- H. How Supplied:** 100 and 250 mL bottles
- I. How Dispensed:** Rx
- J. Dosages:** Single-Dose Therapy: Administer once, a subcutaneous dose of 7.5 - 12.5 mg/kg of body weight (3.4 - 5.7 mL/100 lb).

Multiple-Day Therapy: Administer daily, a subcutaneous dose of 2.5 - 5.0 mg/kg of body weight (1.1 - 2.3 mL/100 lb). Treatment should be repeated at 24-hour intervals for three days. Additional treatments may be given on Days 4 and 5 to animals that have shown clinical improvement but not total recovery.
- K. Route of Administration:** Subcutaneous injection
- L. Species/Class:** Beef and non-lactating dairy cattle

M. Indications:

Cattle – Single-Dose Therapy: BAYTRIL 100 is indicated for the treatment of bovine respiratory disease (BRD) associated with *Mannheimia haemolytica*, *Pasteurella multocida*, *Histophilus somni* and *Mycoplasma bovis* in beef and non-lactating dairy cattle.

Cattle – Multiple-Day Therapy: BAYTRIL 100 is indicated for the treatment of bovine respiratory disease (BRD) associated with *Mannheimia haemolytica*, *Pasteurella multocida* and *Histophilus somni* in beef and non-lactating dairy cattle.

N. Effect of Supplement:

This supplement provides for the treatment of BRD associated with *M. bovis* in beef and non-lactating dairy cattle, when administered as a dose of 7.5 to 12.5 mg/kg BW (3.4 to 5.7 mL/100 lb BW) once by subcutaneous injection.

II. EFFECTIVENESS:

A. Dosage Characterization:

This supplemental approval does not change the previously approved single-dose regimen for cattle. The Freedom of Information (FOI) Summary for the original approval of NADA 141-068 dated July 24, 1998, contains dosage characterization information for cattle.

B. Substantial Evidence:

The effectiveness of enrofloxacin for the treatment of bovine respiratory disease (BRD) associated with *Mannheimia haemolytica*, *Pasteurella multocida*, and *Histophilus somni* in beef and non-lactating dairy cattle was previously demonstrated in the original approval, and is summarized in the FOI Summary for BAYTRIL 100 (NADA 141-068) dated July 24, 1998.

The effectiveness of enrofloxacin for the treatment of BRD associated with *Mycoplasma bovis* in beef and non-lactating dairy cattle was demonstrated by identifying *M. bovis* isolates and examining treatment success data from cattle enrolled in the single-dose therapy BRD treatment study conducted for the original approval of BAYTRIL 100 (NADA 141-068).

The original single-dose therapy BRD effectiveness study (Bayer Reports #74653 and #74653-1) was conducted at four sites: California (study number PD-2674-95A-009),

Texas (study number PD-2674-95A-010), Nebraska (study number PD-2674-95A-011), and Colorado (study number PD-2674-95A-012). *Mycoplasma* species were isolated from pre-treatment swab samples from two locations (Texas and Colorado). *M. bovis* isolates were identified to the species level using a polymerase chain reaction (PCR) method.

Fifty-four *M. bovis* isolates were obtained from pre-treatment nasal swab samples of individual calves enrolled in the single-dose therapy BRD field study. Of the 54 isolates confirmed as *M. bovis*, 35 isolates were obtained from enrofloxacin-treated calves. There were numerically more treatment successes (22/35, 63%) than treatment failures (13/35, 37%) in enrofloxacin-treated calves that cultured positive for *M. bovis*.

These results from Bayer Reports #74653 and #74653-1, along with the results previously summarized in the FOI Summary dated July 24, 1998, demonstrate that BAYTRIL 100, when administered as a single subcutaneous injection of 7.5 to 12.5 mg enrofloxacin/kg of body weight, is effective for the treatment of BRD associated with *M. bovis* in beef and non-lactating dairy cattle.

III. TARGET ANIMAL SAFETY:

CVM did not require target animal safety studies for this supplemental approval. The FOI Summary for the original approval of NADA 141-068 dated July 24, 1998, contains a summary of target animal safety studies for cattle.

IV. HUMAN FOOD SAFETY:

A. Toxicology:

CVM did not require toxicology studies for this supplemental approval. The FOI Summary for the original approval of NADA 141-068 dated July 24, 1998, contains a summary of all toxicology studies.

B. Residue Chemistry:

CVM did not require residue chemistry studies for this supplemental approval. The FOI Summary for the original approval of NADA 141-068 dated July 24, 1998, contains a summary of residue chemistry studies for cattle.

C. Microbial Food Safety:

The impact of the proposed change in indication for BAYTRIL 100 injectable solution to include a new pathogen, *Mycoplasma bovis*, for the treatment of BRD in cattle was carefully considered by the Agency. The Agency determined that because there are no changes in formulation, dosage, route of administration, or duration of use in this supplement, and the only change is the addition of an organism to the

approved indication, the addition of this new pathogen to the previously approved treatment indication should not significantly impact public health, and therefore further evaluation of microbial food safety was not necessary at this time.

D. Analytical Method for Residues:

The FOI Summary for the original approval of NADA 141-068 dated July 24, 1998, contains the analytical method summary for enrofloxacin in cattle.

V. USER SAFETY:

The product labeling contains the following information regarding safety to humans handling, administering, or exposed to BAYTRIL 100:

For use in animals only. Keep out of the reach of children. Avoid contact with eyes. In case of contact, immediately flush eyes with copious amounts of water for 15 minutes. In case of dermal contact, wash skin with soap and water. Consult a physician if irritation persists following ocular or dermal exposures. Individuals with a history of hypersensitivity to quinolones should avoid this product. In humans, there is a risk of user photosensitization within a few hours after excessive exposure to quinolones. If excessive accidental exposure occurs, avoid direct sunlight. For customer service or to obtain product information, including a Material Safety Data Sheet, call 1-800-633-3796. For medical emergencies or to report adverse reactions, call 1-800-422-9874.

VI. AGENCY CONCLUSIONS:

The data submitted in support of this NADA satisfy the requirements of section 512 of the Federal Food, Drug, and Cosmetic Act and 21 CFR part 514. The data demonstrate that BAYTRIL 100, when used according to the label, is safe and effective for the treatment of BRD associated with *M. bovis* in beef and non-lactating dairy cattle. Additionally, data demonstrate that residues in food products derived from cattle treated with BAYTRIL 100 will not represent a public health concern when the product is used according to the label.

A. Marketing Status:

This product may be dispensed only by or on the lawful order of a licensed veterinarian (Rx marketing status). This decision was based on the following factors: (a) adequate directions cannot be written to enable lay persons to appropriately diagnose and subsequently use this product to treat BRD, and (b) restricting this drug to use by or on order of a licensed veterinarian should help prevent indiscriminate use which could result in violative tissue residues.

B. Exclusivity:

Under section 512(c)(2)(F)(iii) of the Federal Food, Drug, and Cosmetic Act, this approval qualifies for THREE years of marketing exclusivity beginning on the date of the approval. The three years of marketing exclusivity applies only to the new claim (treatment of BRD associated with *M. bovis* [single dose regimen]), for which this supplement is approved.

C. Supplemental Applications:

This supplemental NADA did not require a reevaluation of the safety or effectiveness data in the original NADA (21 CFR 514.106(b)(2)).

D. Patent Information:

The sponsor did not submit any patent information with this application.

For current information on patents, see the Animal Drugs @ FDA database (formerly the Green Book) on the FDA CVM internet website.