Exhibit 5

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bcc: J. Phillip
D. Copeland
L. Klostermann
DLL/File
Central F

Green
Route: BC/LAH/PKT/SN

Bayer

Agriculture Division

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Bayer Corporation
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June 21, 1996

ENTERED

Dr. George K. Haibel, Chief
Antimicrobial Drugs Branch
Division of Therapeutic Drugs for Food Animals
Office of New Animal Drug Evaluation
Center for Veterinary Medicine
Food and Drug Administration
7500 Standish Place
Rockville, MD 20855

Re: INAD 4586, Baytril 3.23% Concentrate Solution for Use in Chicken Drinking Water
General Correspondence, Published Literature

Dear Dr. Haibel:

As required by 21 CFR 514.8 (b)(8)(iv), attached please find triplicate copies of abstracts of published literature pertinent to the use of enrofloxacin in chickens. This information is intended to support all past and future submissions related to Baytril 3.23% Concentrate Solution for use in chicken drinking water, INAD 4586, and is being submitted as an update to the previous submission of published literature, dated November 11, 1994.

In a pre-NADA meeting with CVM on July 11, 1995, to define the methods to optimize the management of documents and submissions through the INAD phase to the NADA filing, Bayer Animal Health representatives were told that we could update the INAD with more recent published literature so as little as possible will have to be sumitted when the NADA is filed.

These abstracts, pertaining to enrofloxacin use in chickens, have been extracted from a large international database for enrofloxacin covering all species and dosage forms and includes all documents published since November, 1994. Should you require a copy of the entire document, please notify us and a copy of the entire article will be provided.

Should you have any questions regarding this submission, please call me at (913) 268-2510.

Sincerely,

Dianne L. Lavenburg

Dianne L. Lavenburg
publit.doc

[x 207] **Authors:** Jacobs Reitsma W F; Kan C A; Bolder N M.

Titel: The induction of quinolone resistance in Campylobacter bacteria in broilers by quinolone treatment.

Quelle: LETT-APPL-MICROBIOL, 1994, Vol/Iss/Pg. 19/4 (228-231), ISSN: 0266-8254.

Abstract: Induction of quinolone resistance in campylobacters by a quinolone treatment of Campylobacter-colonized broilers was studied. Six groups of 15 broiler chicks each were administered a quinolone-sensitive Campylobacter jejuni strain at 19 d of age. At the age of 26 d, two dosages (15 or 50 ppm) of flumequine or enrofloxacin were given via the drinking water for 4 d. One group was treated with enrofloxacin during the first 4 d of life. Quinolone treatment did not eradicate Campylobacter colonization in the broilers. On days 29, 33 and 43 (at slaughter) of life, chicks in both enrofloxacin-treated groups harboured nalidixic acid-, flumequine- and enrofloxacin resistant-campylobacters. Campylobacter isolates from all other groups remained sensitive to these quinolones. Two Campylobacter-free control groups were not colonized by campylobacters during the whole experiment. 209 BIZZ

[x 1242] **Authors:** Jacobs Reitsma W F; Kan C A; Bolder N M.

Titel: The induction of quinolone resistance in Campylobacter bacteria in broilers by quinolone treatment.

Quelle: Lett-Appl-Microbiol, 1994, 19 (4), 228-231 (15 ref.).

Abstract: Quinolones are often used to treat severe cases of human infection with Campylobacter spp., and they are are also used in veterinary medicine, especially for treating poultry. Their extensive use has been given as a cause for the large increase in quinolone-resistant campylobacters. In this study, induction of quinolone resistance in campylobacters was studied in broiler chicks. Groups of broiler chicks were artificially infected with a quinolone-sensitive C. jejuni and treated with flumequine or enrofloxacin. Campylobacter colonisation of the chicks was not prevented, and enrofloxacin-treated groups harboured strains resistant to other quinolones. AHE. 6 FOST

[x 489] **Authors:** Jacobs Reitsma W F; Koenraad P M F J; Bolder N M; Mulder R W A W.

Titel: In vitro susceptibility of Campylobacter and Salmonella isolates from broilers to quinolones, ampicillin, tetracycline and erythromycin.

Quelle: Vet-Q (16, No. 4, 206-08, 1994) Coden: VEQUDU.

Abstract: The in-vitro susceptibility of Salm. and hippurate-pos. and -neg. Campylobacter isolates from broilers to quinolones, ampicillin, tetracycline and erythromycin is reported. Quinolone resistance was detected in 29% of Campylobacter isolates from 55/150 flocks and there was almost complete cross-resistance between the quinolones (nalidixate (NAL), flumequine (FLU), ciprofloxacin (CIP), enrofloxacin (ENR)). With Salm. isolates, 8.5% from 7.5% of flocks were resistant to NAL and FLU and tetracycline but susceptible to CIP and ENR. There was no similarity in susceptibility patterns of the 2 species when isolated from the same flock, indicating that different mechanism are involved in resistance development. 492 CABI

[x 270] **Authors:** Jacobs Reitsma W F; Koenraad P M F J; Bolder N M; Mulder R W A W.

Titel: In vitro susceptibility of Campylobacter and Salmonella isolates from broilers to quinolones, ampicillin, tetracycline, and erythromycin.

Quelle: Veterinary Quarterly; vol 16; no 4; pp 206-208; ISSN: 0165-2176; 16 ref.

Abstract: Campylobacter isolates (167) collected from 150 broiler flocks between March 1992 and March 1993 were tested for their susceptibility to cephalothin (control), ampicillin, tetracycline, erythromycin and the quinolones nalidixic acid, flumequine, enrofloxacin and ciprofloxacin by a disc diffusion method. Almost complete cross-resistance was found between the quinolones tested. 181 Campylobacter isolates (29%) originating from 55 flocks were quinolone resistant. Of 94 Salmonella isolates from 40 flocks tested for their antimicrobial susceptibility, 8 (8.5%) from 3 broiler flocks (7.5%), showed resistance to nalidixic acid and flumequine (and tetracycline), but not to ciprofloxacin or enrofloxacin. 272 EMZZ

[x 90] **Authors:** Jarrar Shua a Omer A; Kittaneh Ra afat B; Da as Kefah E.

Titel: HPLC method for the determination of enrofloxacin in broiler chicken's blood.

Quelle: Orient J Chem, VOL: 11 (1), P: 7-10, ISSN: 0970-020X.

Abstract: