

Medications and treatment practices used on California dairies: A survey of veterinarians

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Introduction

During the December, 2010, Central Valley Regional Water Quality Control Board (RB5) board meeting, requests were made for more stringent permit requirements for dairy operations. The dairy industry proposed that UC-Davis complete a study of pharmaceutical use on California dairies in order to generate current and objective data with which to inform the permit development process. To obtain the data required, a survey of practicing dairy veterinarians was conducted to provide a point of reference for evaluating pharmaceutical use specific to California dairies.

Materials and Methods

The California Department of Food and Agriculture provided a list of California veterinarians approved to administer brucellosis testing; this list was further refined to identify those with dairy clientele. A draft survey was developed by the authors and critiqued by 3 dairy practitioners. An introductory postcard was mailed, followed by a hard copy of the survey. Each veterinarian had the opportunity to complete the survey online or via hard copy.

The survey addressed categories of pharmaceuticals including antibiotics, ionophores and coccidiostats, anthelmintics and other parasiticides, antihistamines, glucocorticoids, diuretics, non-steroidal analgesics, topical medications, hormones, and other veterinarian-administered compounds. Practitioners were asked to identify frequency of use on dairies they serviced for 111 FDA-approved pharmaceutical compounds. Questions were unbiased, alphabetical lists of compounds and quantitative data were not requested. Response options included: "routinely given to most animals in a production or age group", "individual treatment of animals based on recognized illness or condition", or "rarely/never used". When appropriate, the last selection was "other", which allowed veterinarians the opportunity to identify a compound not listed. Responses within each survey were reviewed for logical response and completeness.

Results

Responses received represented a total of 1,063,390 cows on 558 California dairies. These data represented 58% of the dairy cows and 36% of dairy farms in California, and included a subset of 36 certified organic herds (22,475 cows). The majority (351/558 [63%]) of dairies housed more than 1,000 milking and dry cows. Thirty-nine calf-raising facilities that only housed youngstock (343,400) were described.

Responses indicated that the most frequently used dry-cow intramammary treatments were penicillin-dihydrostreptomycin, cephalosporin benzathine, cloxacillin, and ceftiofur. Erythromycin and penicillin G procaine were rarely or never used for dry- or lactating-cow intramammary treatments. Lactating cow intramammary treatments most frequently used were ceftiofur or cephalosporin sodium. The antibiotics oxytetracycline, penicillin G procaine, and sulfadimethoxine were used to treat adult animals on an individual basis. Amoxicillin trihydrate was rarely used as an adult antimicrobial product. Enrofloxacin, florfenicol, and tulathromycin were the most frequently used antimicrobials for young stock. More than ten additional FDA-approved antimicrobials were used only rarely in youngstock. Anthelmintics and parasiticides were infrequently used on California dairies. Monensin was widely incorporated in lactating cow and youngstock rations. Copper sulfate and formaldehyde were routinely used on many dairies as topical treatments to prevent and treat foot infections in adult cows.

Significance

These data provide, for the first time, a snapshot of actual pharmaceutical use on California dairies. Data have previously been presented in the scientific literature relating water quality concerns to pharmaceutical use on dairies. The results from this study provide an evidence-based context with which to evaluate the potential contribution of dairies to pharmaceuticals identified in water resources in the state of California.