CgFARAD™ NEWSLETTER

SPRING 2022

CGFARAD™ YEAR IN REVIEW

Veterinarians are legally permitted to prescribe drugs in an extra label manner (i.e., for disease indications, or doses or duration of treatments that are different than the approved drug labelling). But, using a drug in an extra label manner means the label withdrawal time for meat, milk or eggs, no longer applies. Unlike human medicine, when drugs are used in veterinary medicine, the labels cannot and will never include all of the species and uses on the label. By definition then, many uses of pharmaceuticals in veterinary medicine are extra label.

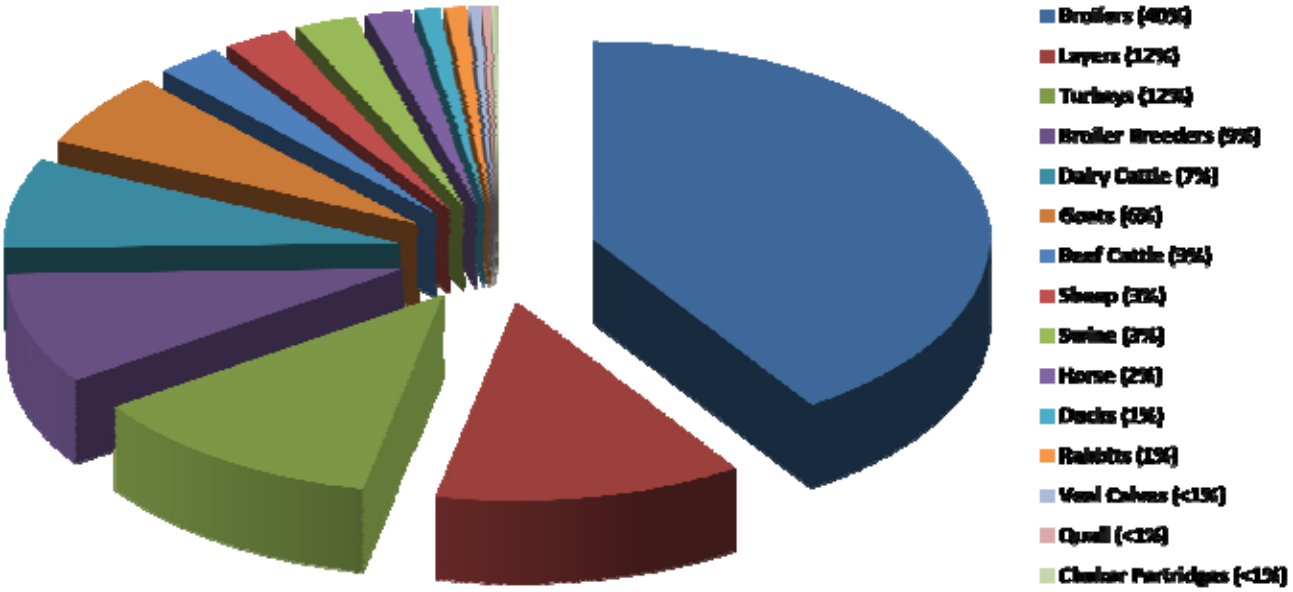
The Canadian global Food Animal Residue Avoidance Databank (CgFARAD™) provides veterinarians with unbiased veterinary pharmacology expertise on withdrawal times. CgFARAD™ also undertakes research where insufficient information exists. This ensures food safety when drugs are used extra label in food producing animals. In addition to extra label use, the nature of delivering treatments and the number of points of contact for veterinary treatments result in errors and also accidental exposures. These occurrences must be addressed to ensure that violative residues in animal food products. Dangerous levels of prescribed or compounds to which food animals have been accidentally exposed, must not enter the human and animal food supplies and CgFARAD™ is an essential frontline service which helps to perform this critical safety function for public health.

CgFARAD™ responded to 2,649 withdrawal requests in 2021-2022 covering 25 a diverse group of livestock and poultry commodities.

In our spring newsletter each year, we provide graphs illustrating requests by pharmaceutical product and by disease for each commodity group. Several graphs depicting this summary data by species are shown on the following pages. This is valuable information as it illustrates the health challenges with which veterinarians are dealing and highlights where there may be limited registered label options. The CgFARAD™ pharmacologists also use this knowledge to identify where drug residue research and depletion studies are needed.

The number of requests received by CgFARAD™ continues to grow. There were 92 more requests in 2021-2022 as compared to the previous year.

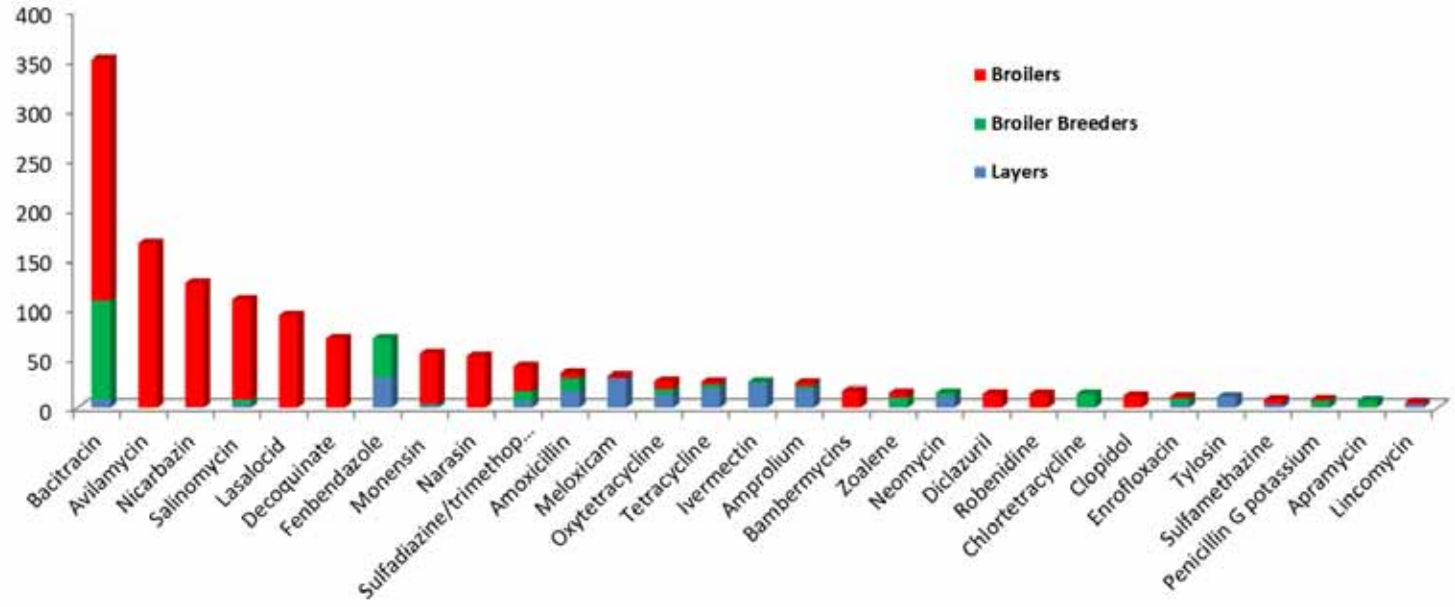
CgFARAD™ Requests by Commodity Group
May 1, 2021 to April 30, 2022



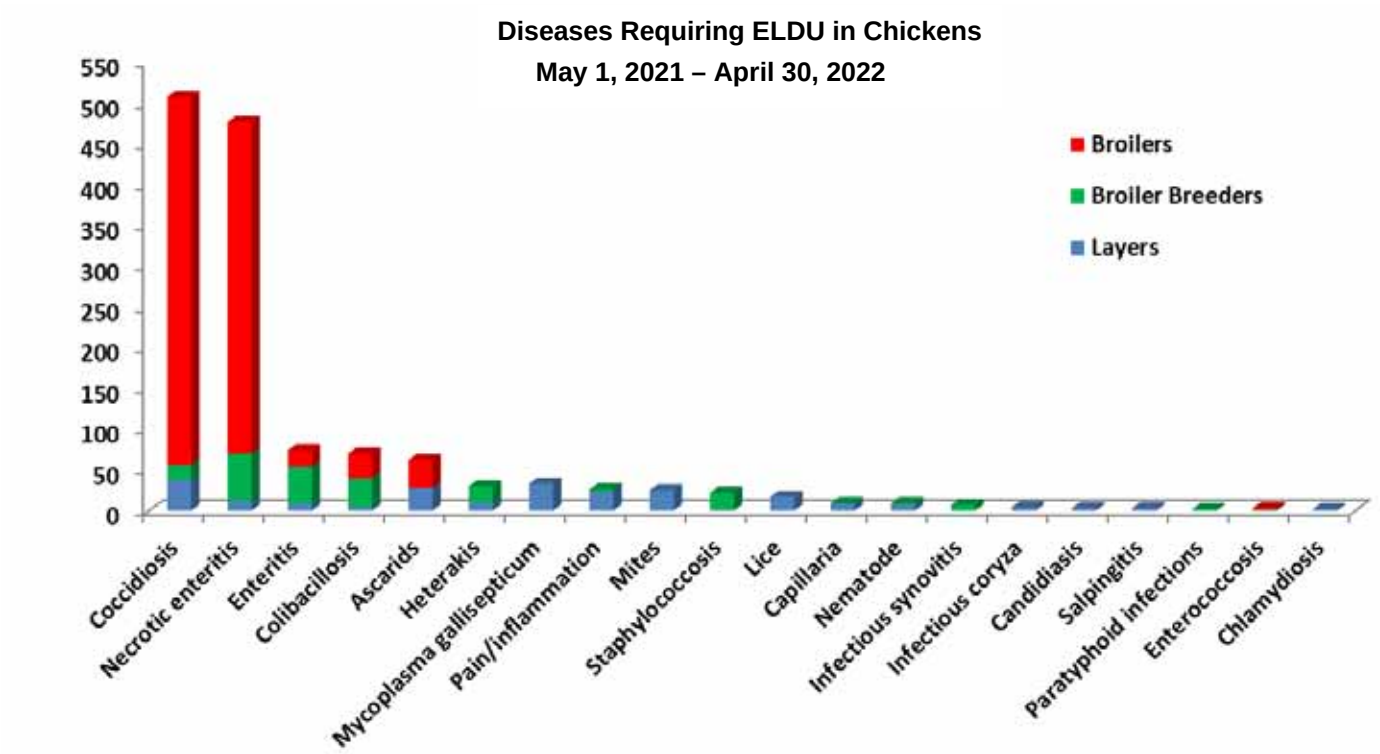
The CgFARAD™ personnel provide withdrawal guidance as our major mandate but are playing an increasing role in the promotion of antimicrobial stewardship. Dr Dowling has been very active in the Canadian Veterinary Medical Association's educational efforts, including reviewing many of the prudent use guidelines now available to Canadian veterinarians through a phone app (Firstline™). When responding to requests for ELDU of antimicrobials, we carefully consider the rationale for the drug use and how it lines up with good antimicrobial stewardship. We will not provide withdrawal guidance in cases of clearly inappropriate ELDU, but instead we provide advice on suitable alternative treatments.

In all types of chickens, coccidiosis and necrotic enteritis continue to be the predominant diseases that require extra-label drug use (ELDU). The chicken industry has eliminated the preventive use of Category I and II antimicrobials and has a goal to eliminate the preventive use of Category III antimicrobials. So the use of these drugs has moved from disease prevention requests to treatment in the face of disease requests. This leaves a heavy reliance on bacitracin and avilamycin for the treatment of necrotic enteritis, along with the use of the Category IV ionophores to control coccidiosis.

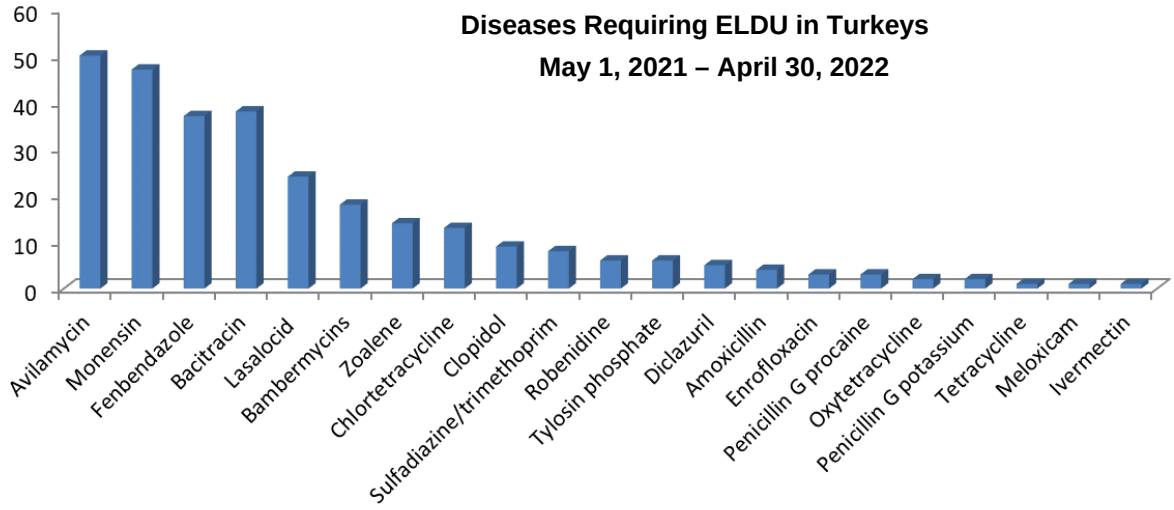
ELDU Requests for Chickens by Product
May 1, 2021 – April 30, 2022



Mites and lice are problematic both in commercial birds and backyard flocks. We do a lot of education for veterinarians for small flock owners, as pesticides cannot be used in an extra-label manner and we must tell them that the CgFARAD™ cannot give withdrawal recommendations for an illegal pesticide use. Currently, we only have residue depletion information for the use of ivermectin in the water, so we direct veterinarians to this treatment. For commercial flocks, we are eagerly awaiting the approval of Exzolt™ (fluranaler, Merck Animal Health) for control of mites in Canadian poultry. Due to its strong safety profile, the maximum residue limits will be high and the product is anticipated to have a zero egg withdrawal time in Canada, as it does in the European Union. Unfortunately for the backyard flocks, the smallest size of the product is a container that treats 10,000 birds. The CgFARAD™ directors formed a small research group with a CFIA scientist and a poultry professor from the University of Saskatchewan to submit a proposal to Egg Farmers of Canada to investigate the use of dog and cat formulations of fluralaner to determine if they would be suitable for use on small flocks of layers.

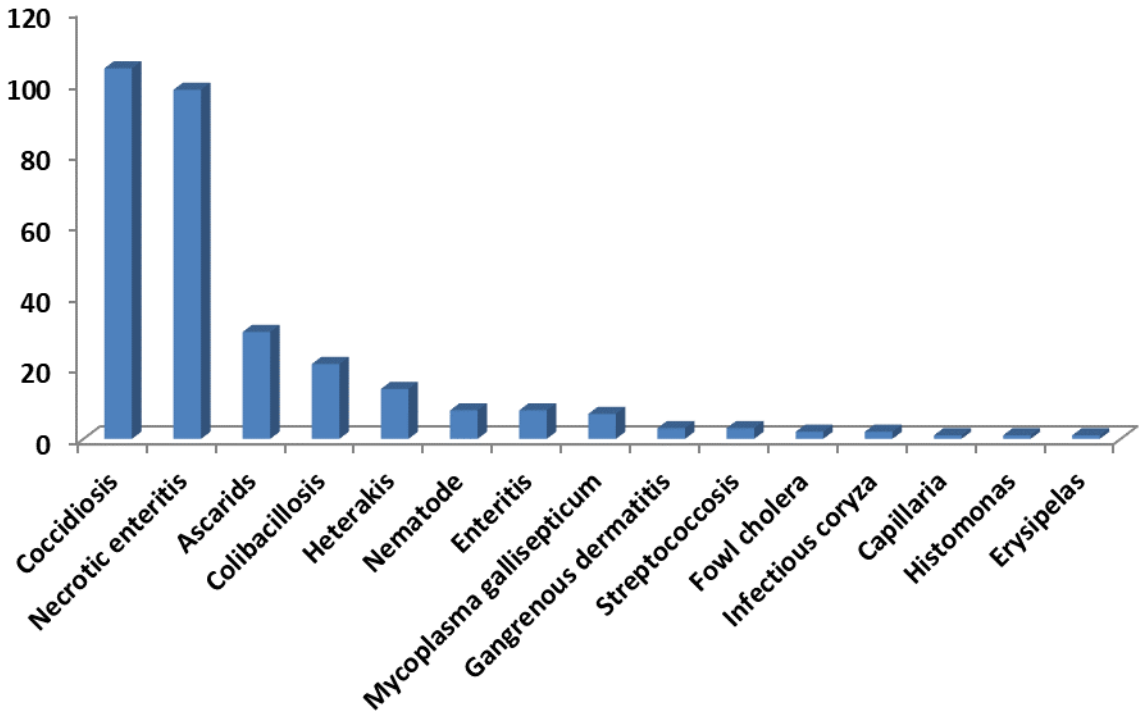


With the approval of Panacur AquaSol for all classes of chickens with no meat or egg withdrawal needed, our requests for ELDU in chickens has decreased. There are still occasions where use of this water product is not feasible, so we do still receive some requests in chickens. Backyard poultry requests are typically for small animal or equine formulations of fenbendazole.



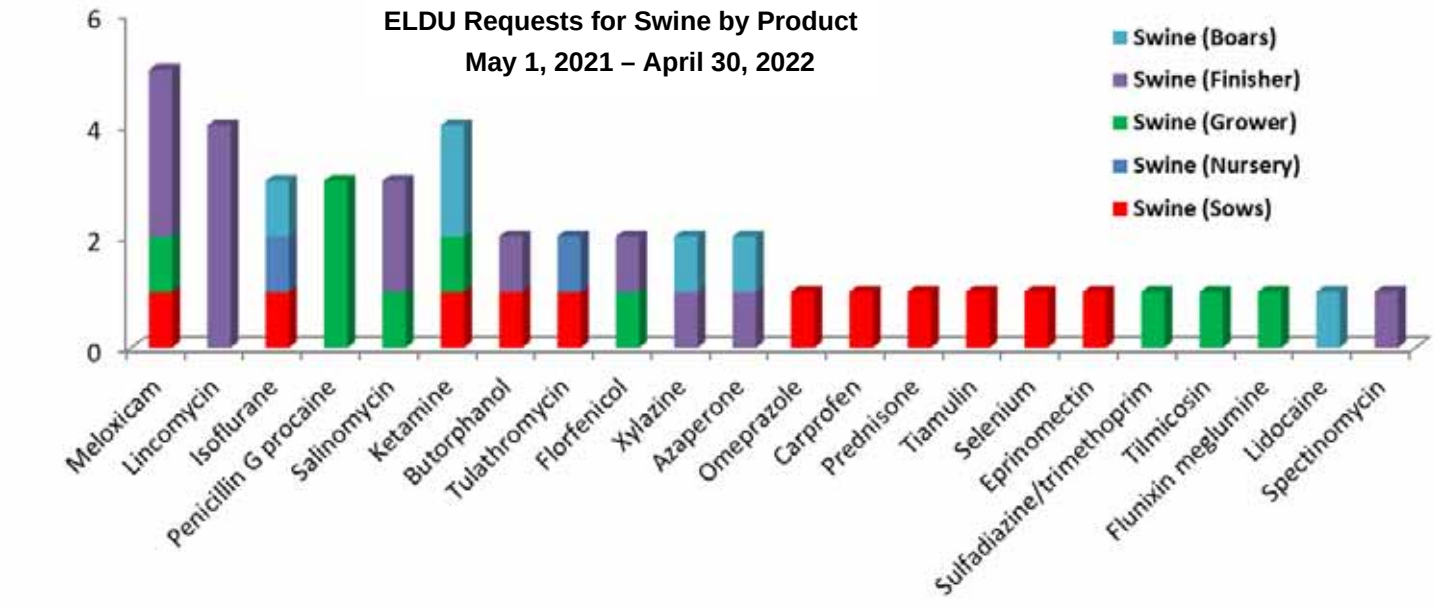
Panacur AquaSol was not approved for turkeys. With the of the fenbendazole premix for turkeys with a 24 hr withdrawal time, we expected to see a reduction in these requests. However, the approved dosage and duration of 16 ppm and six days does not match how it is being used by poultry practitioners. The most common dosage and duration have been 30 ppm and seven days and still requires an ELDU withdrawal recommendation. But now that we have Maximum Residues Limits for fenbendazole in turkeys (they are the same as for chickens), we can provide a much shorter withdrawal recommendation based upon the published CgFARAD™ fenbendazole depletion study.

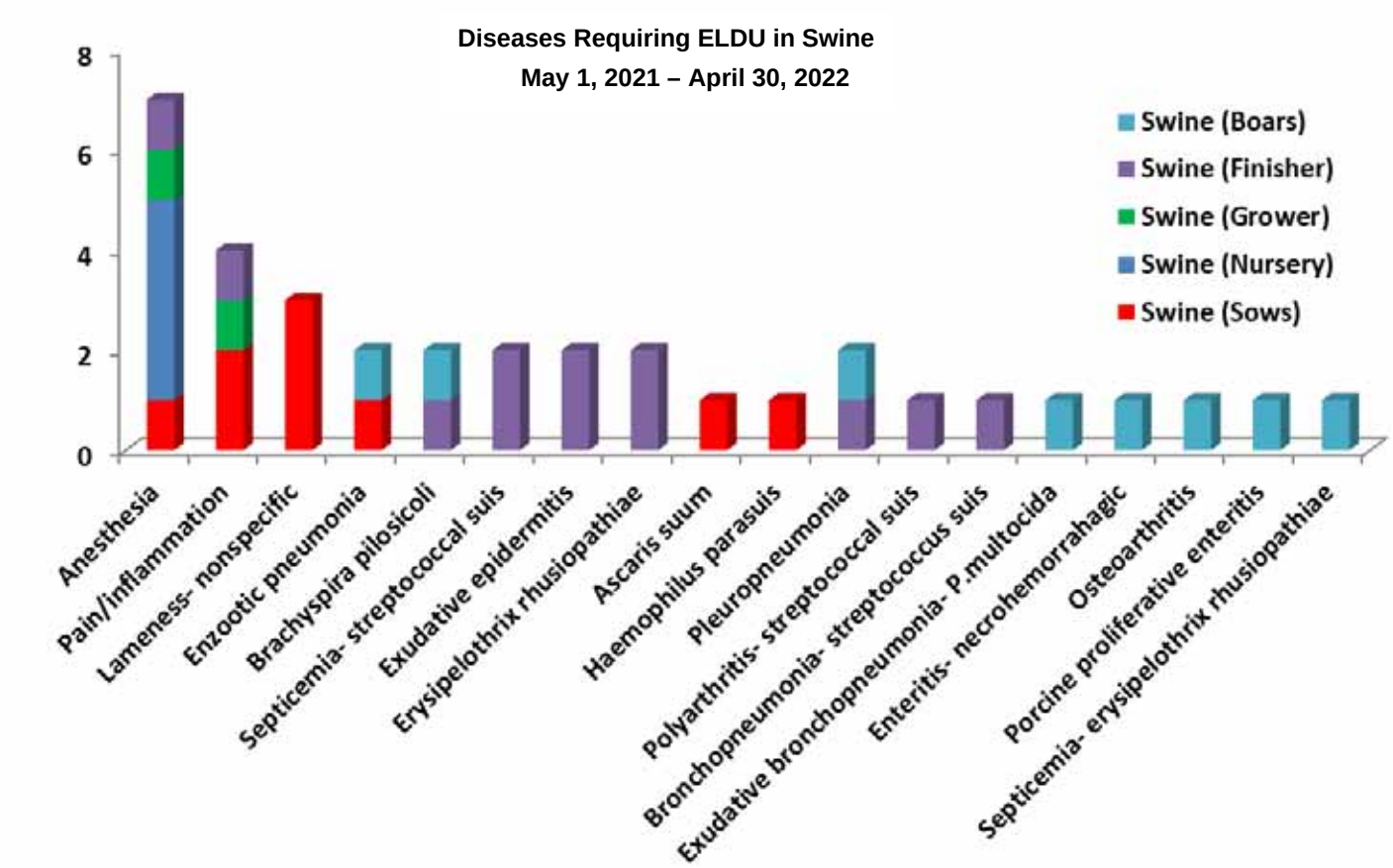
ELDU Requests for Turkeys by Product
May 1, 2021 – April 30, 2022



We are frequently consulted for advice on drugs used for anesthesia and pain control in swine, especially as the production of breeding boars uses high tech methods of determining suitability such as CT scans. The swine veterinarians have few on-label treatment options in this area and one of the only approved products was in a back-order situation. It is difficult for Canadian veterinarians to meet the requirements of the Code of Practice for the care and handling of pigs with so few treatment options.

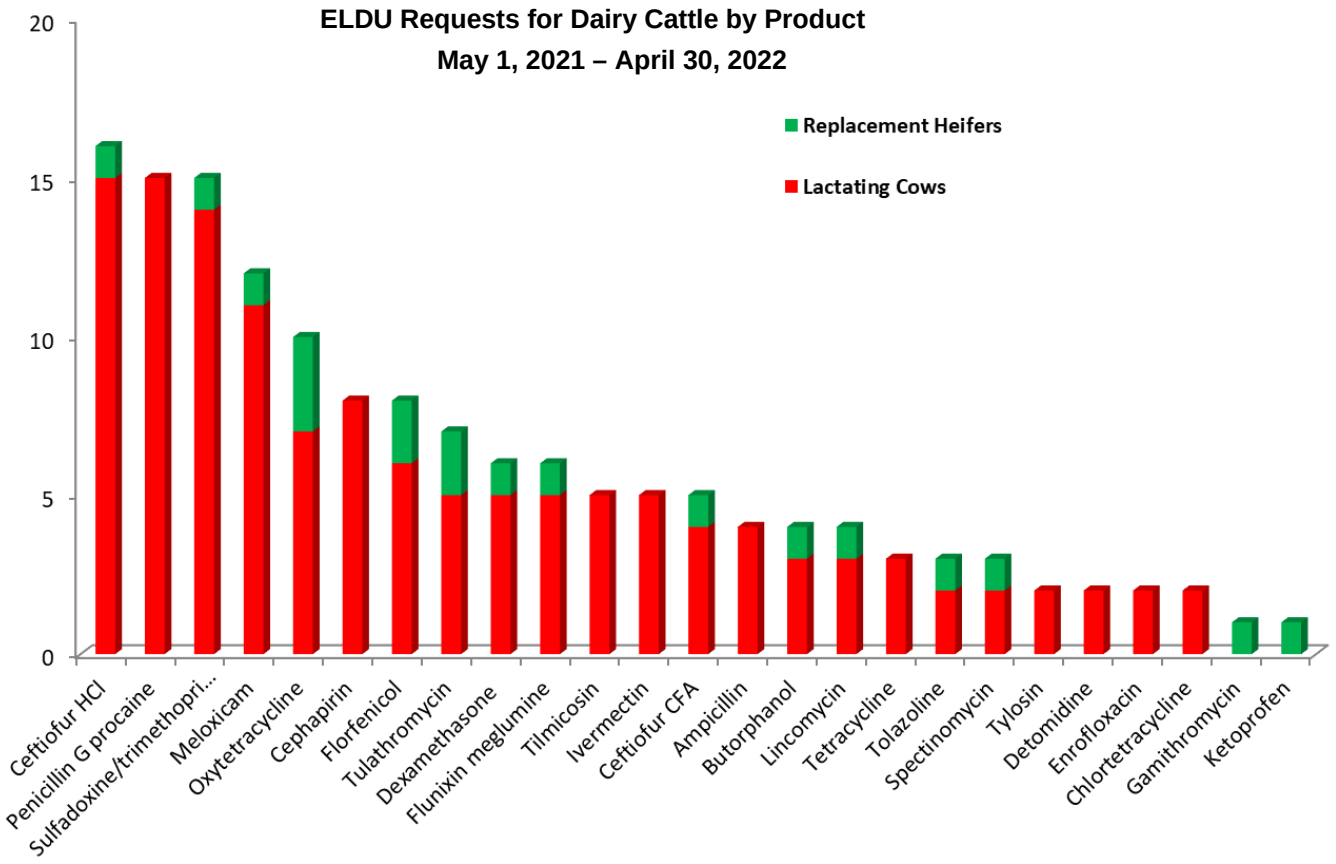
ELDU Requests for Swine by Product
May 1, 2021 – April 30, 2022

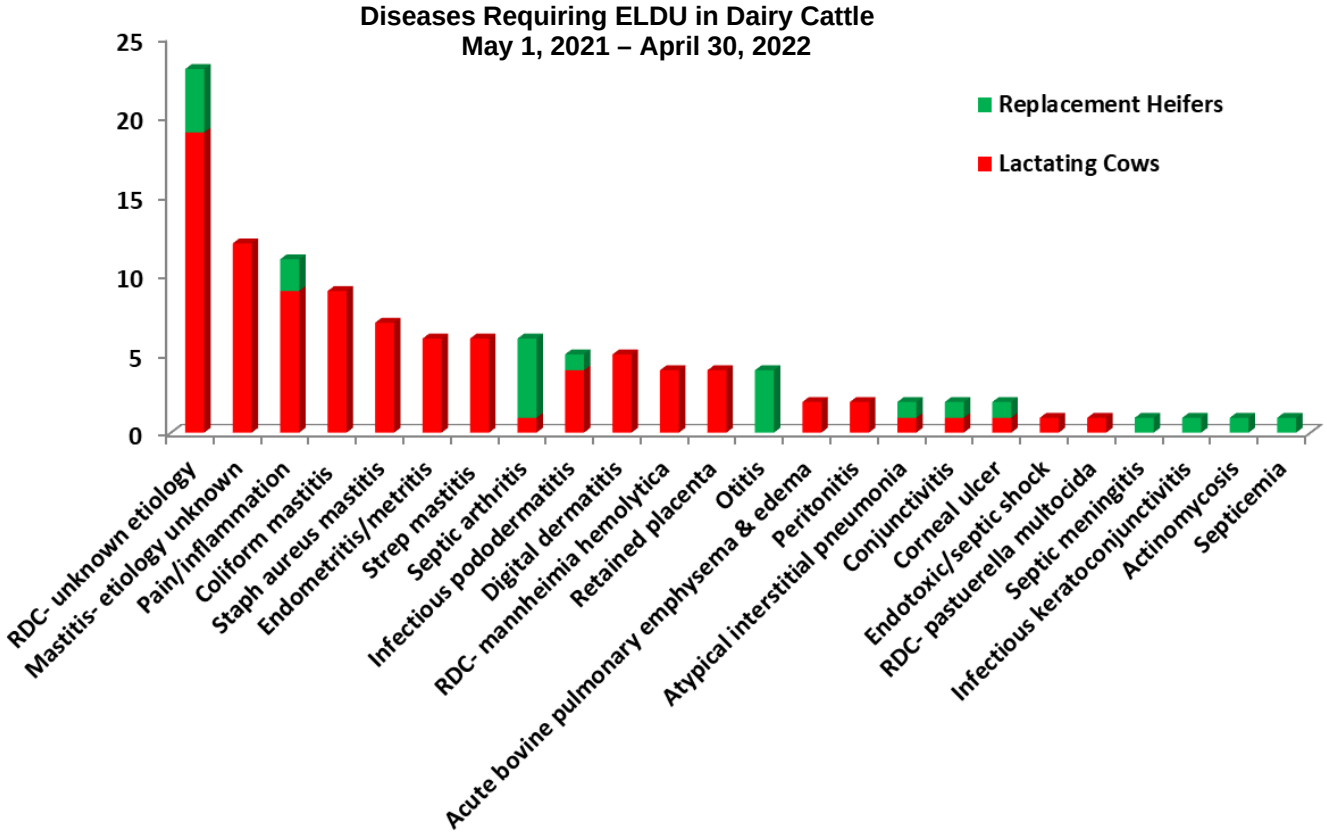




In dairy cattle, treatment of bovine respiratory disease (BRD) and mastitis continue to be the most common reasons for ELDU. Treatment of digital dermatitis and pain and inflammation are also important reasons for ELDU. Drug availability for the on-label treatment of mastitis continues to be a problem and makes it very difficult for dairy veterinarians to practice good antimicrobial stewardship. Special Formula 17900, while approved for bovine mastitis, was frequently used with extra-label treatment regimens (e.g., twice daily and for more than two days). This product contained penicillin G procaine, dihydrostreptomycin, novobiocin and polymyxin B. It is no longer available from the manufacturer. In November of 2021, the same manufacturer also abruptly discontinued the sales of Pirsue® (pirlimycin, a macrolide) and Novodry® Plus (penicillin and novobiocin). The loss of these products has left dairy veterinarians with few treatment choices. For lactating cows, the only choices are Cefa-Lak® (cephapirin, a first-generation cephalosporin) and Spectramast LC (ceftiofur, a third-generation cephalosporin and a Category I antimicrobial). For dry cow treatment, there are dry cow formulations of cephapirin and ceftiofur and Dry-Clox (cloxacillin). The discontinuation of short-acting formulations of oxytetracycline that were approved for lactating cows has also handicapped dairy veterinarians. A pharmaceutical company did begin offering a compounded short-acting oxytetracycline, but as a non-approved formulation, it carries no withdrawal times on its label. The CgFARAD™ had to issue a special statement through the Canadian Association of Bovine Practitioners that we could not provide withdrawal guidance for compounded products.

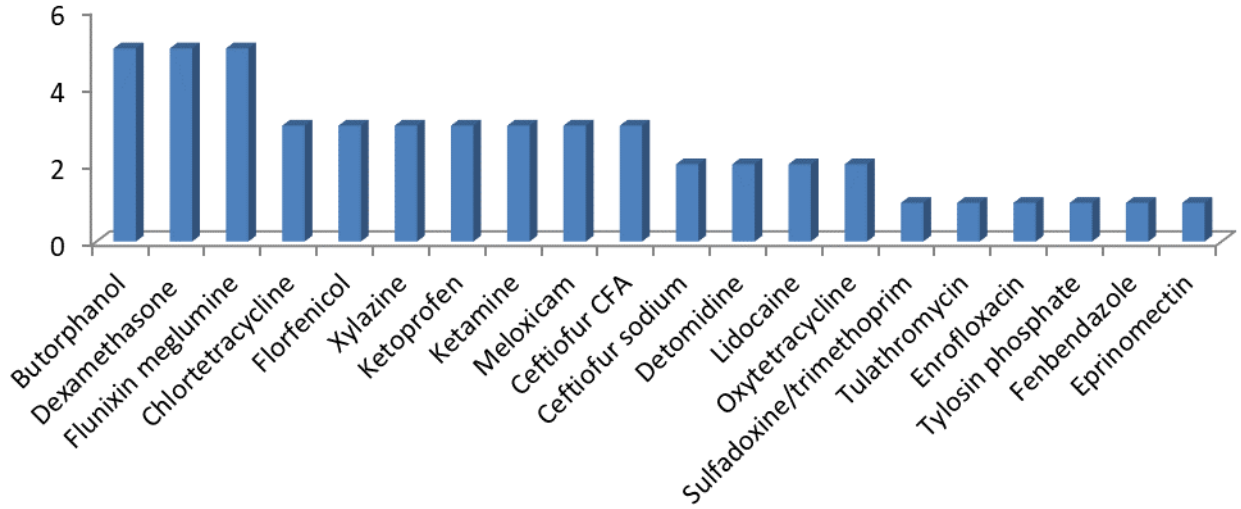
Feed mill errors and accidental exposures are always given emergency priority for dairy cattle. For these situations, CgFARAD™ personnel provide information on drug residue testing in milk and laboratories with the capability of rapid testing in order to get the impacted producer back online as fast as possible.


ELDU Requests for Dairy Cattle by Product
May 1, 2021 – April 30, 2022
Replacement Heifers
Lactating Cows
20
15
10
5
0
Ceftiofur HCl
Penicillin G procaine
Sulfadoxine/trimethopri...
Meloxicam
Oxytetracycline
Cephapirin
Florfenicol
Tulathromycin
Dexamethasone
Flunixin meglumine
Tilmicosin
Ivermectin
Ceftiofur CFA
Ampicillin
Butorphanol
Lincomycin
Tetracycline
Tolazoline
Spectinomycin
Tylosin
Detomidine
Enrofloxacin
Chlortetracycline
Gamithromycin
Ketoprofen

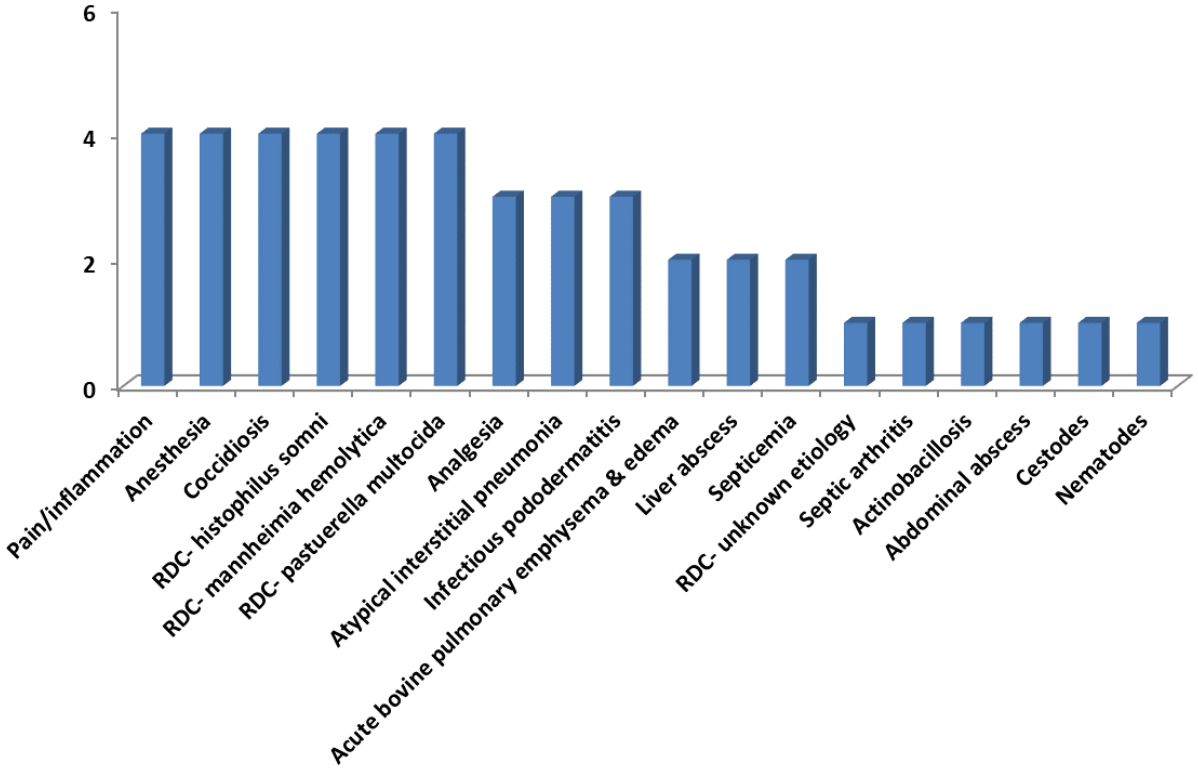

Diseases Requiring ELDU in Dairy Cattle
May 1, 2021 – April 30, 2022
Replacement Heifers
Lactating Cows
25
20
15
10
5
0
RDC- unknown etiology
Mastitis- etiology unknown
Pain/inflammation
Coliform mastitis
Staph aureus mastitis
Endometritis/metritis
Strep mastitis
Septic arthritis
Infectious pododermatitis
Digital dermatitis
RDC- mannheimia hemolytica
Retained placenta
Otitis
Acute bovine pulmonary emphysema & edema
Peritonitis
Atypical interstitial pneumonia
Conjunctivitis
Corneal ulcer
Endotoxic/septic shock
RDC- pasteurella multocida
Septic meningitis
Infectious keratoconjunctivitis
Actinomycosis
Septicemia

Requests for withdrawal information for ELDU in beef cattle are traditionally low. Cow/calf operations have animals that are far from the time of slaughter and feedlot operations typically do not use drugs in an ELDU manner. We have recently been consulted on the issue of a fluoroquinolone that is approved for BRD in cattle in Canada but not in the United States, and therefore there are no tolerances for this drug in cattle slaughtered in the United States. We were able to supply information on the process to allow the FDA to set tolerances for this product.

ELDU Requests for Beef Cattle by Product
May 1, 2021 – April 30, 2022

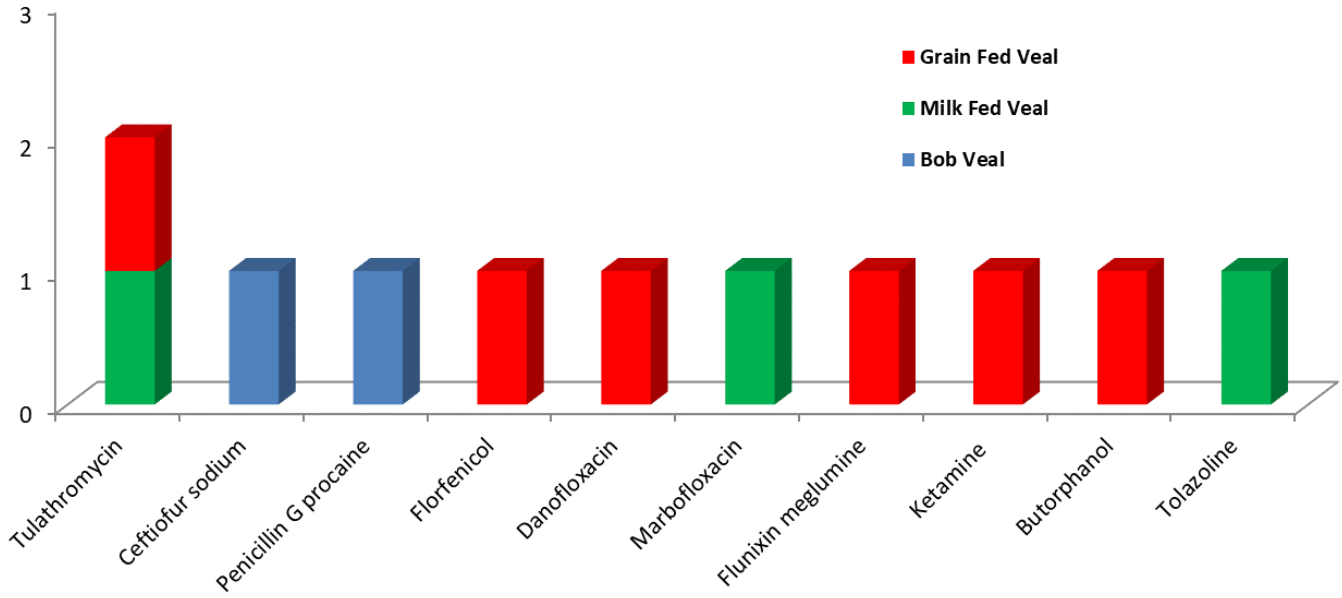


Diseases Requiring ELDU in Beef Cattle
May 1, 2021 – April 30, 2022

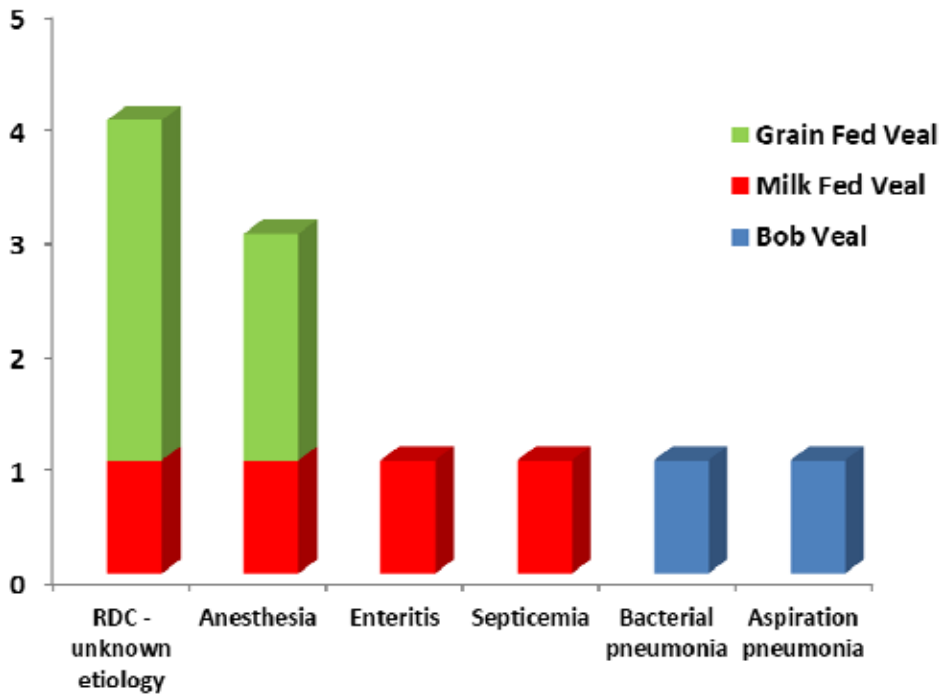


ELDU in the veal sector focuses on treatment of infectious diseases. The Veterinary Drugs Directorate and the Canadian Food Inspection Agency have set guidelines for the MRLs applied to veal. Category I drugs and hormones will be enforced to the limits of detection of the CFIA assays and require greatly extended withdrawal times. In keeping with good antimicrobial stewardship guidelines, we also provide advice on the appropriate use of such drugs, including the warning that such use is illegal in the United States. For the other categories of drugs, the CFIA will enforce to the MRLs set for cattle.

ELDU Requests for Veal by Product
May 1, 2021 – April 30, 2022

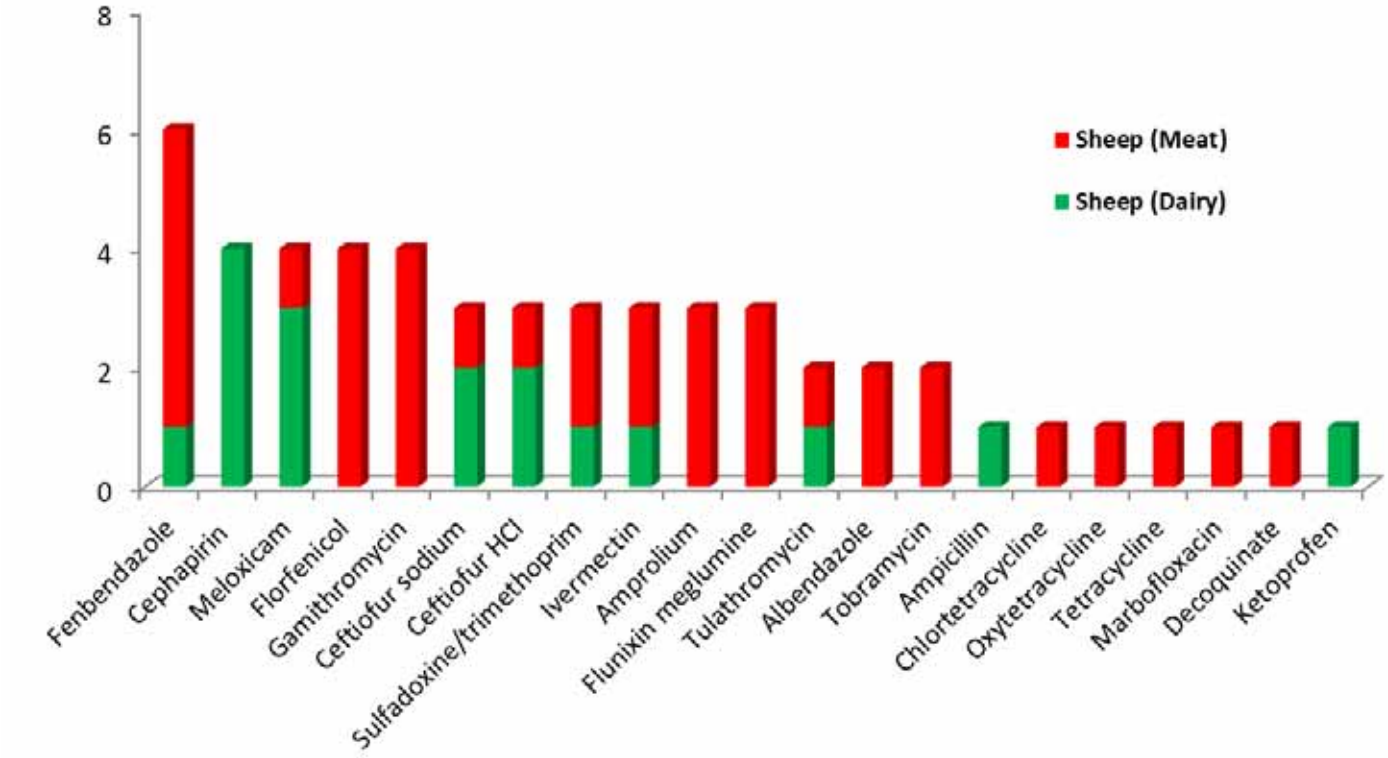


Diseases Requiring ELDU in Veal
May 1, 2021 – April 30, 2022

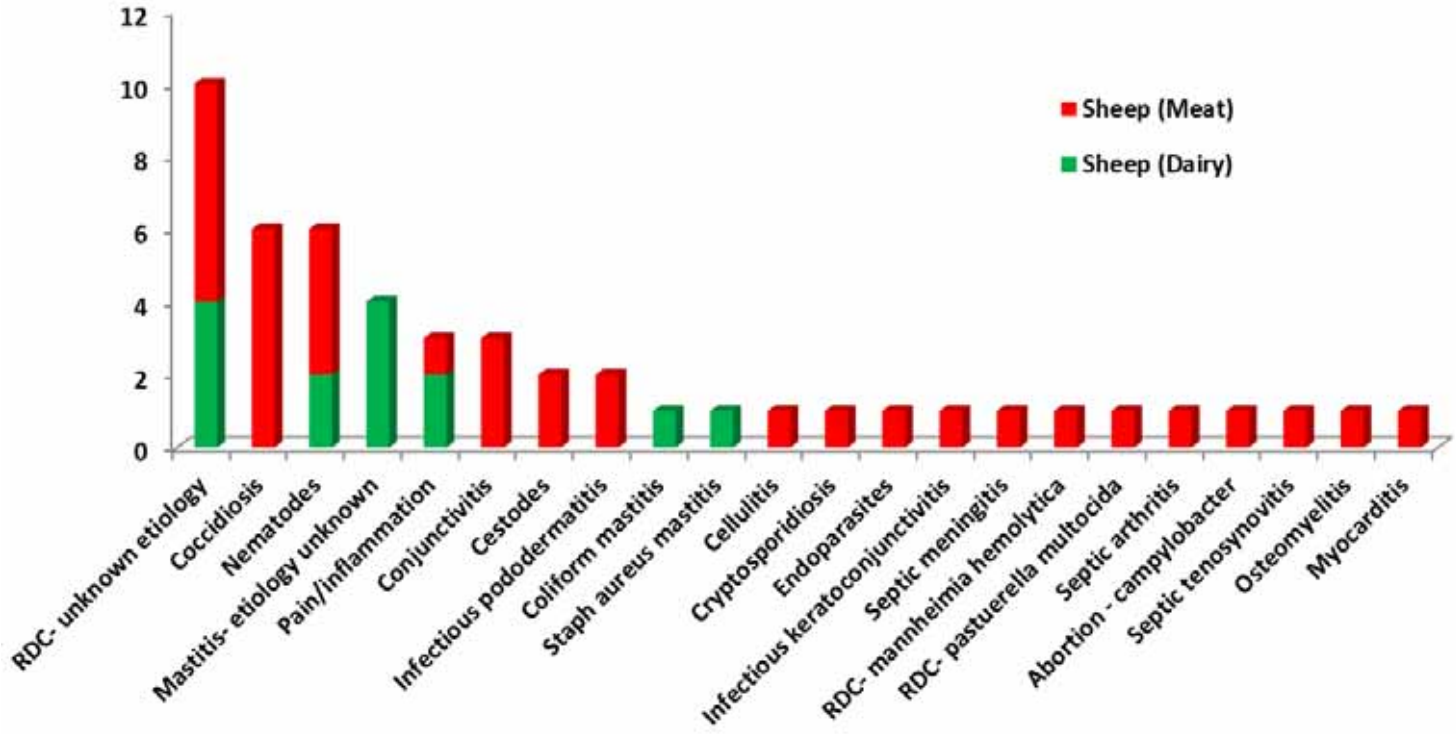


Due to limited drug approvals and bacterial and parasite resistance, antimicrobials, coccidiostats and dewormers are the most commonly used products for ELDU in sheep and goats. Even if parasite resistance is not present, residues in milk of lactating sheep and goats can be very problematic due to persistence and very sensitive detection methods used by regulators. The CgFARAD™ personnel provide a lot of guidance on the appropriate use of dewormers in small ruminants. For antimicrobial use, there is a tendency for small ruminant practitioners to want to offer “recipe books” of drugs, dosages and withdrawal times to producers. The CgFARAD™ personnel also provide a lot of information on good antimicrobial stewardship principles and the need for specific prescriptions and CgFARAD™ withdrawal recommendations for treatment of infectious diseases.

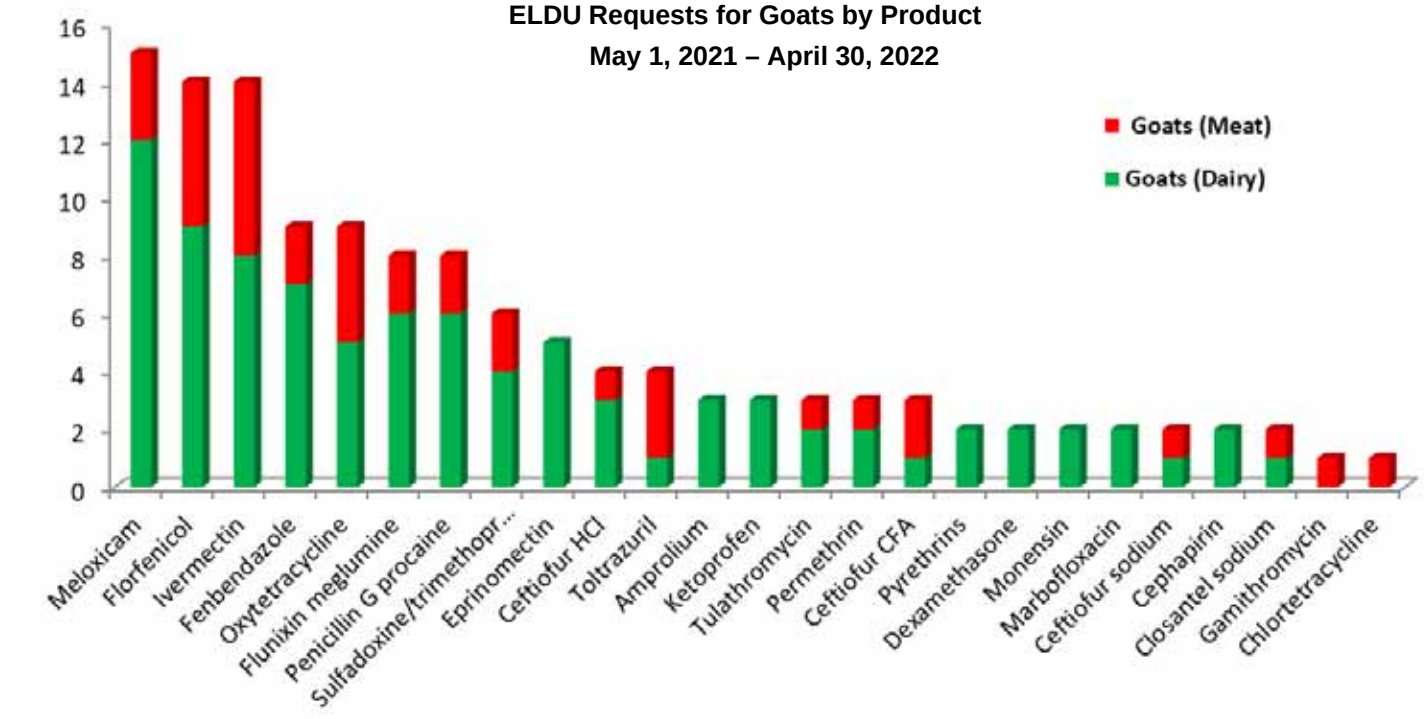
ELDU Requests for Sheep by Product
May 1, 2020 – April 30, 2021



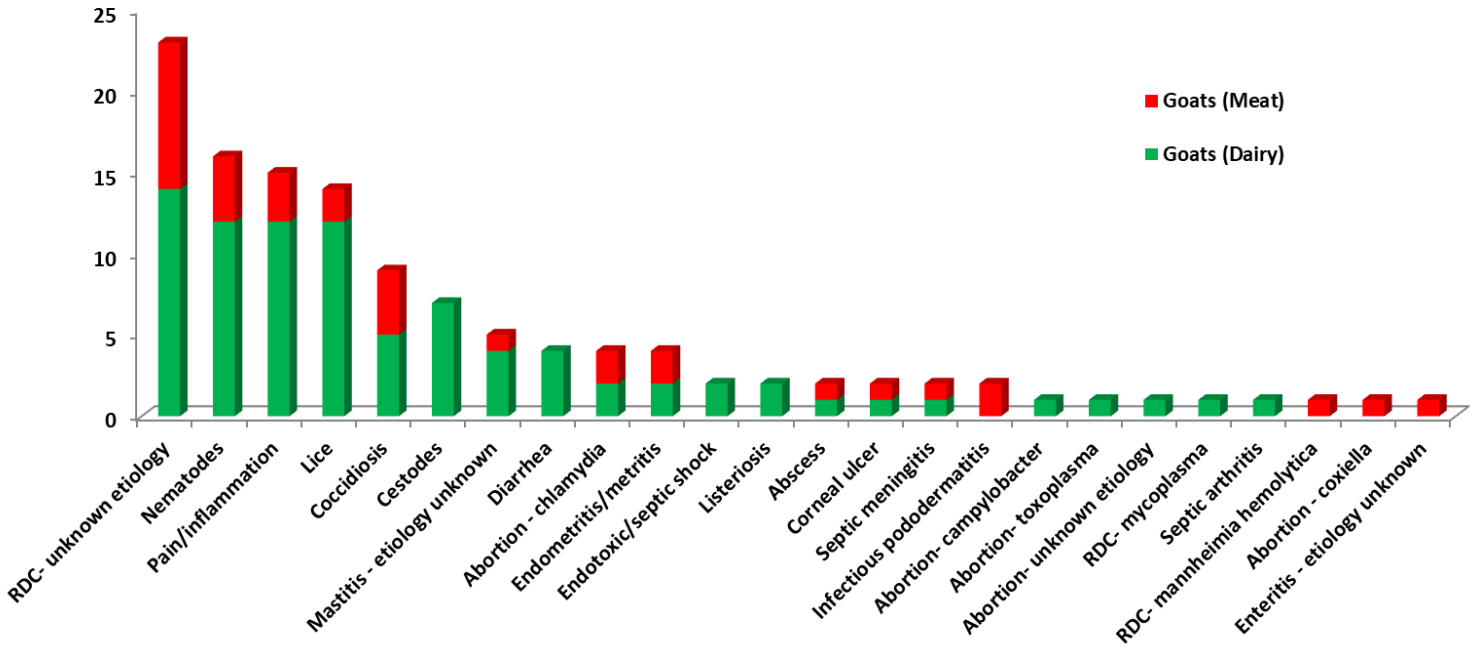
Diseases Requiring ELDU in Sheep
May 1, 2021 – April 30, 2022



ELDU Requests for Goats by Product
May 1, 2021 – April 30, 2022



Diseases Requiring ELDU in Goats
May 1, 2021 – April 30, 2022



The chart below shows a comparison of ELDU requests by commodity over the past several years. Requests in 2021-2022 were up by 92 as compared to 2020-2021 and is the highest number of annual requests received. Broiler requests were noticeably higher than normal. Several of the minor use species also had higher usage.

The "other" category in 2021-2022 was comprised of six alpaca, two yak and two bees reflecting the diversity of species groups served by CgFARAD™ team. However, the vast majority of requests are for the major farmed animal species.

Species	2021-2022 requests	2020-2021 requests	2019-2020 requests	2018-2019 requests	2017-2018 requests	2016-2017 requests	2015-2016 requests
Chickens/Broilers	1057	819	866	796	756	825	801
Turkeys	317	455	399	380	512	482	446
Dairy Cattle	190	230	274	266	261	232	266
Broiler Breeders	237	227	228	259	119	79	101
Chickens/Layers	325	330	145	144	137	92	69
Goats	156	153	134	241	189	196	90
Sheep	66	110	80	170	164	125	61
Beef Cattle	68	67	72	82	64	88	48
Swine	63	50	62	171	38	40	56
Rabbits	22	23	24	24	22	21	21
Bison	8	5	22	11	13	11	7
Horses	45	12	19	23	21	10	19
Ducks	24	48	16	20	5	6	13
Veal Calves	11	4	14	15	45	23	48
Deer	6	0	7	0	1	1	5
Chukar Partridges	6	1	6	10	6	8	19
Elk (Wapiti)	8	2	5	5	4	N/A	3
Quail	8	2	4	5	10	5	9
Geese	8	2	3	2	5	N/A	3
Pigeons	0	3	2	3	14	N/A	4
Guinea Fowl	9	1	2	2	8	1	0
Pheasants	3	7	2	6	6	6	4
Fish	2	1	0	1	4	1	2
Other	10	5	7	4	N/A	5	10
Total	**2649**	**2557**	**2393**	**2640**	**2404**	**2257**	**2105**

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BAM Bio Agri Mix

Boehringer Ingelheim

CAHI ICSA

CCA Canadian Cattlemen's Association

DPAC ATLC Dairy Processors Association of Canada / Association des transformateurs laitiers du Canada

Canadian Hatching Egg Producers / Les Producteurs d'oeufs d'incubation du Canada

Canadian Pork Council / Conseil canadien du porc

Canadian Poultry and Egg Processors Council / Conseil canadien des transformateurs d'oeufs et de volailles

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