

CgFARAD™ - Protecting Animals and Our Food Supply

Where licensed products for a species or a specific condition are not available, veterinarians are legally permitted to prescribe drugs extra label for disease indications, or doses or duration of treatments that differ from approved drug labelling. But extra label drug use (ELDU) means that label withdrawal times for meat, milk or eggs no longer apply. In addition, administration of veterinary drugs in feed or water can result in erroneous as well as accidental exposures. These exposures could cause violative drug residues in food products, which must not enter the food chain. In these situations, CgFARAD™ ensures food safety by providing veterinarians with unbiased veterinary pharmacological expertise on withdrawal times and undertakes research where insufficient information on withdrawal times exists.

CgFARAD™ services ensure the safety of Canada's food supply, while protecting our reputation with international trading partners and export markets.

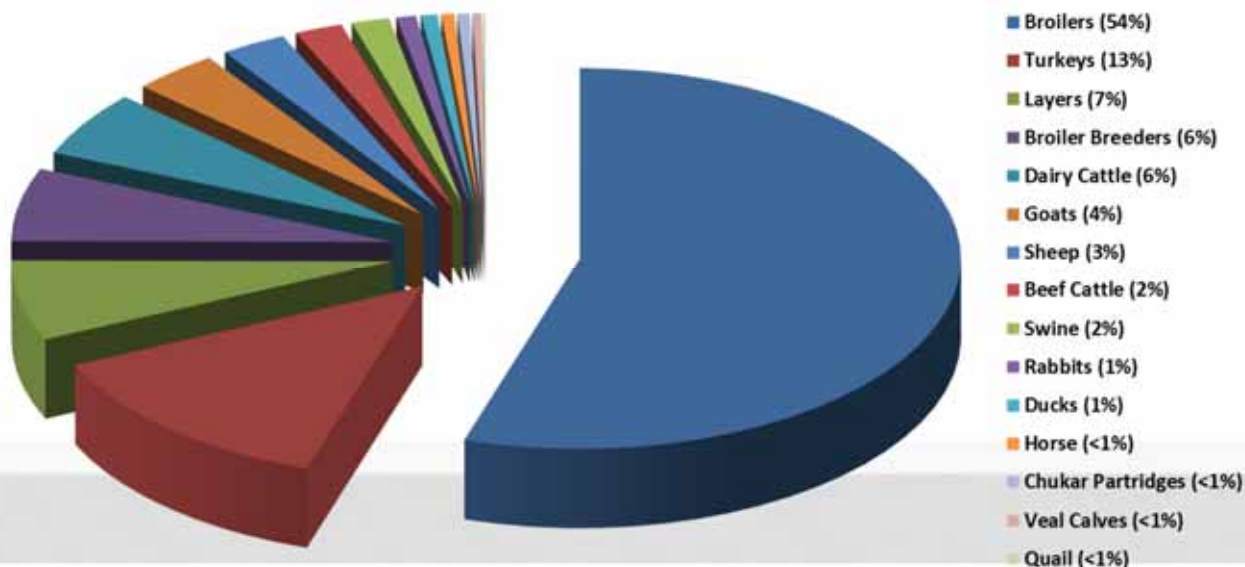
**CgFARAD™ responded to
3,142 withdrawal requests in
2022-2023, a 19% increase
over 2021-2022.**

YEAR IN REVIEW

In our spring newsletter, we provide graphs illustrating requests by pharmaceutical product and by disease for each commodity group. 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 493 more requests in 2022-2023 as compared to the previous year.

**CgFARAD™ Requests by Commodity Group
May 1, 2022 to April 30, 2023**



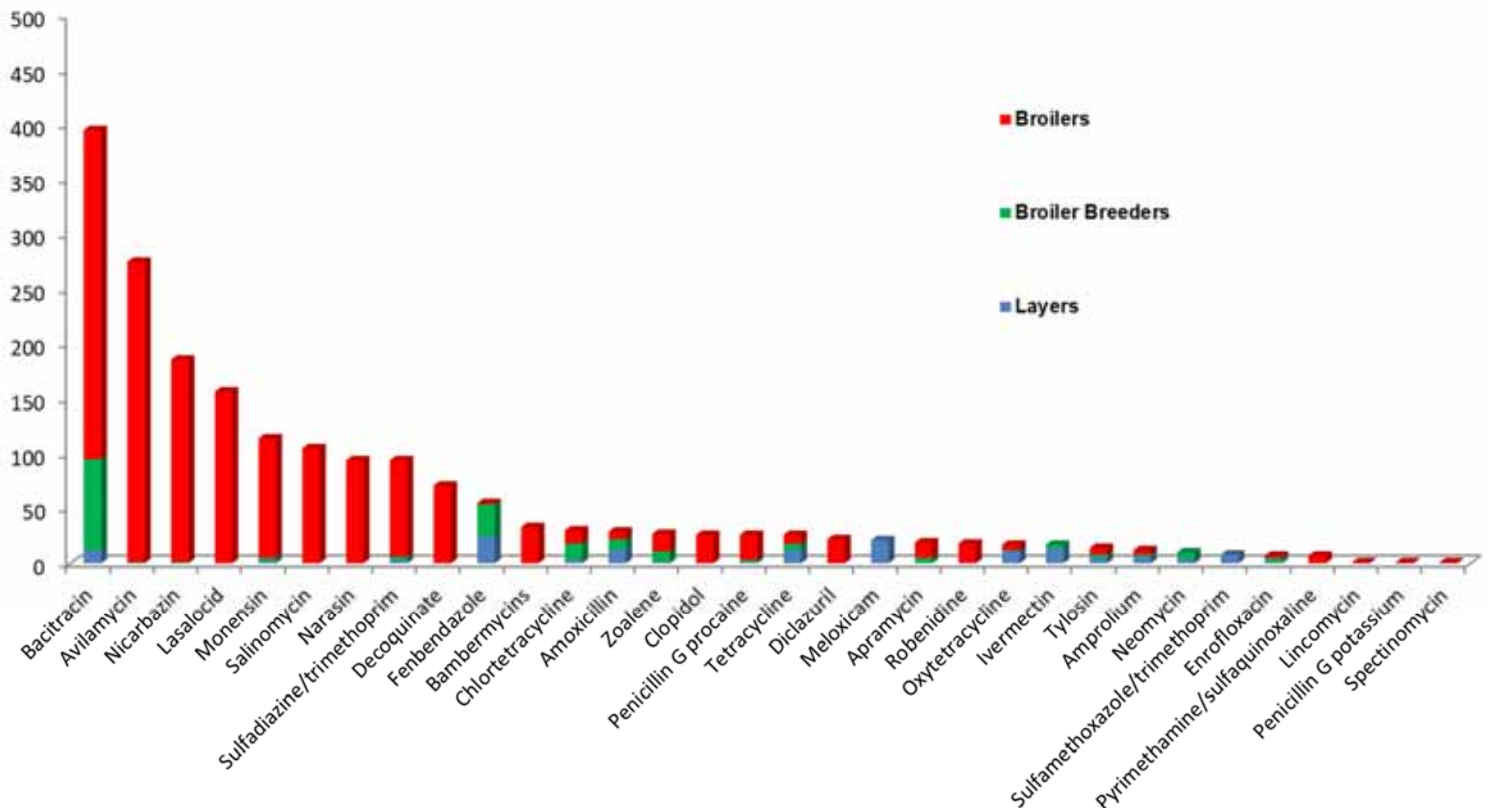
The CgFARAD™ personnel provide withdrawal guidance as our major mandate but are playing an increasing role in the promotion of antimicrobial stewardship. Dr Dowling continues to be very active in the Canadian Veterinary Medical Association's educational efforts. Dr Dowling was selected to participate in the 2023 National Institute of Antimicrobial Resistance Research and Education (NIAMRRE) One Health Interprofessional Education program. NIAMRRE addresses prioritized gaps in knowledge related to antimicrobial use, stewardship, and utilizing a One Health approach. The program consisted of online modules where professionals from veterinary medicine, human medicine and antimicrobial research worked through case scenarios. Group members practiced the four core competencies for interprofessional collaborative practice: 1) Work with individuals of other professions to maintain a climate of mutual respect and shared values; 2) Use the knowledge of one's own role and those of other professions to appropriately assess and address the health care needs of patients and to promote and advance the health of populations; 3) Communicate with patients, families, communities, and professionals in health and other fields in a responsive and responsible manner that supports a team approach to the promotion and maintenance of health and the prevention and treatment of disease; 4) Apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan, deliver, and evaluate patient/population-centered care and population health programs and policies that are safe, timely, efficient, effective, and equitable.

The CgFARAD™ personnel are also concerned about the shortage of approved veterinary products in Canada that is impacting everything from animal health and welfare, economics of production, to international competitiveness of Canadian animal agriculture. Recent examples include the loss of all approved short-acting oxytetracycline products that were widely used, especially in dairy cattle, and the loss of all lactating cow intramammary antimicrobials with the exception of two cephalosporin drugs. Limiting intramammary therapy to a single antimicrobial class, where one of the products is considered to be a highly important antimicrobial whose use may be restricted, is not good antimicrobial stewardship. Veterinary practitioners are sometimes left considering very extralabel drug uses and the CgFARAD™ personnel provide guidance on what is or is not appropriate. The CgFARAD™ personnel are also aware of a compounded short-acting oxytetracycline product that was labeled to mimic an approved drug by listing meat and milk withdrawal times. As it is illegal for a drug manufacturer to put such information on the label of a compounded drug product, we have taken action to report the product to the Veterinary Drugs Directorate and to warn veterinarians against the use of this product as we will not provide withdrawal recommendations for compounded products. Dr Dowling has represented the CgFARAD™ on an industry working group on access to antimicrobials for the Canadian market that started with a roundtable meeting with the Veterinary Drugs Directorate, Regulatory Operations and Enforcement Branch, Pest Management Regulatory Agency, Canadian Food Inspection Agency, and Agriculture and Agri-Food Canada. This was followed by online meetings of the industry working group to explore options for improving the access of Canadian producers to necessary medications. The working group is going to produce an advocacy document that all industry partners could bring to government to drive improvements in access to antimicrobials and alternatives.

Commodity Group Trends

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 Category IV ionophores to control coccidiosis.

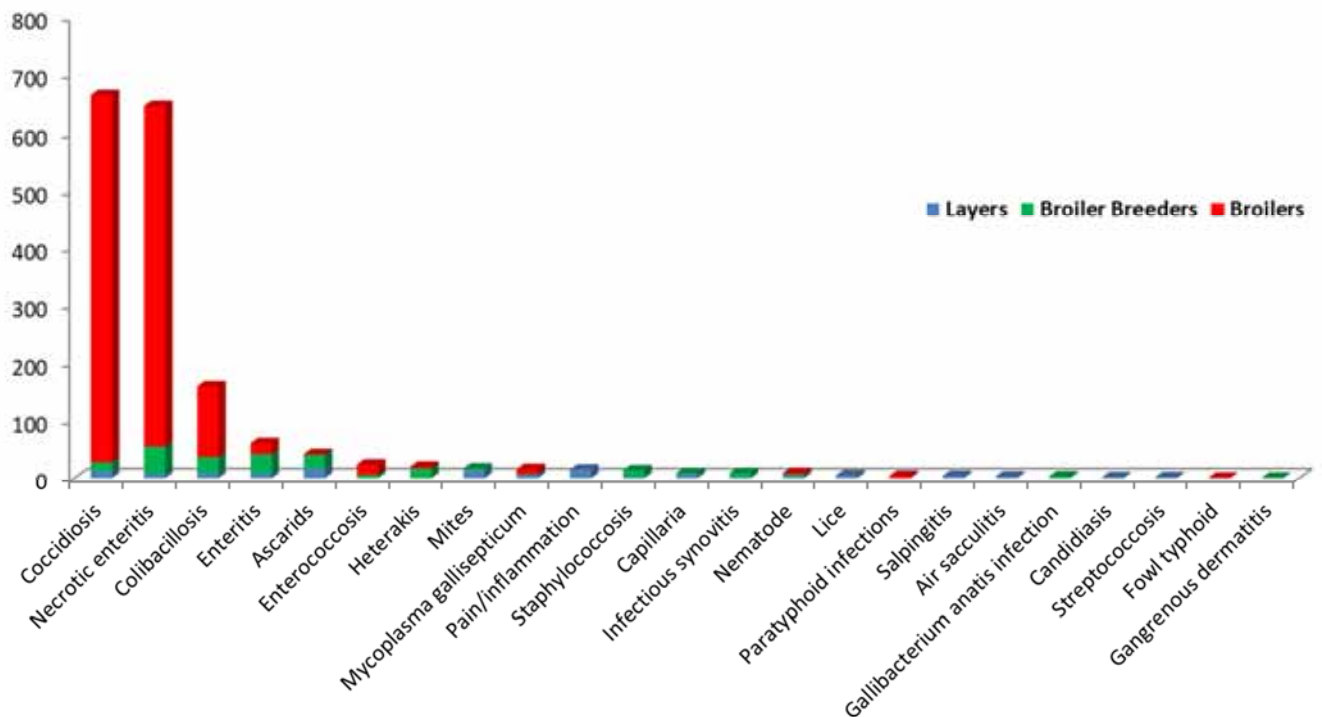
ELDU Requests for Chickens by Product May 1, 2022 – April 30, 2023



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™ (fluralaner, 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 and have received funding from the 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. The study will be starting at the end of May at the University of Saskatchewan.

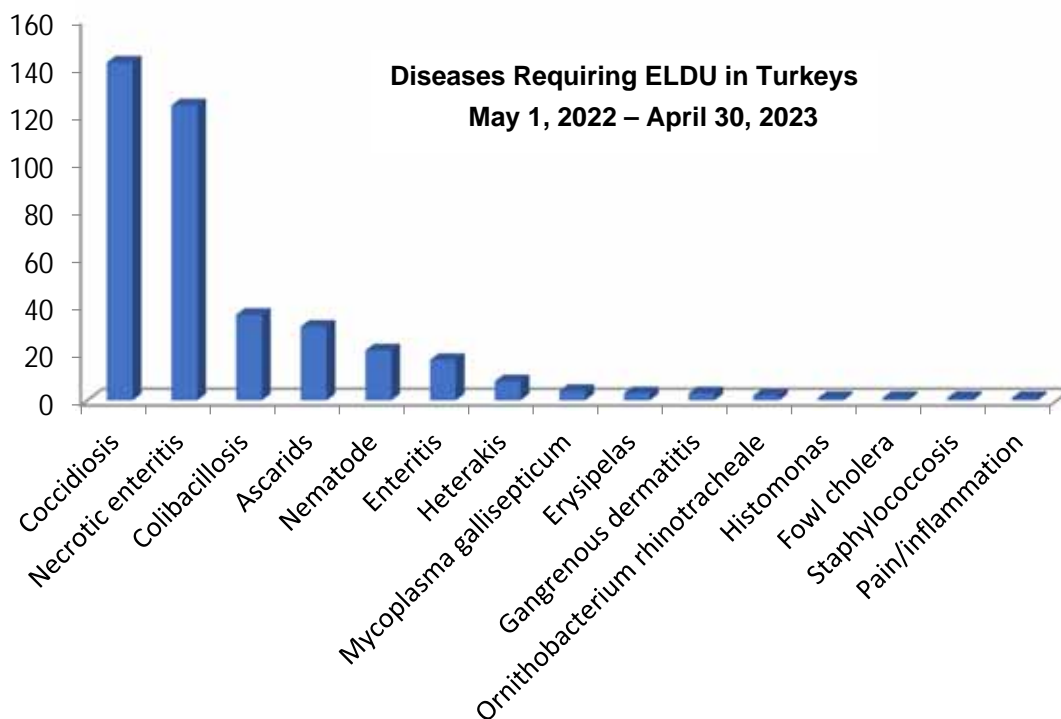
Diseases Requiring ELDU in Chickens

May 1, 2022 – April 30, 2023



Diseases Requiring ELDU in Turkeys

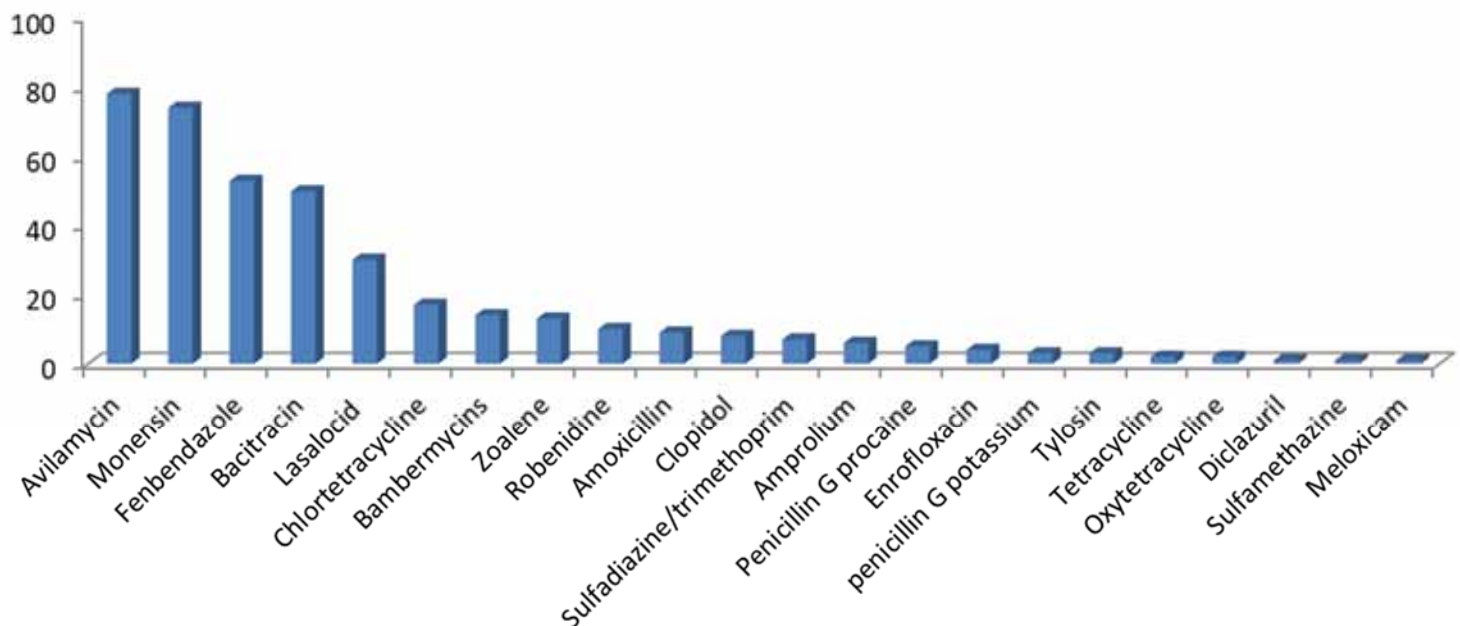
May 1, 2022 – April 30, 2023



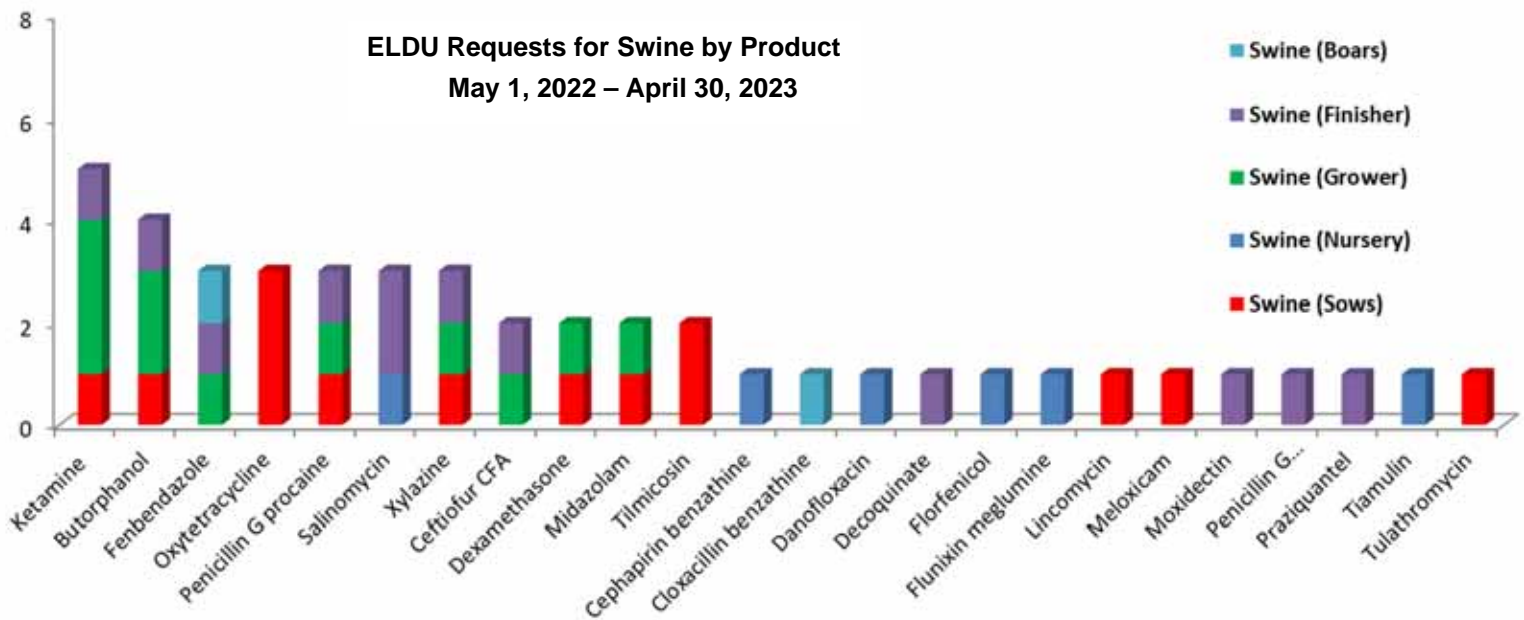
Panacur AquaSol was not approved for turkeys. With the approval of the fenbendazole premix for turkeys with a 24 hour withdrawal time, we expected to see a reduction in these requests. However, the approved dosage and duration of 16 ppm and six days does not match how it is being used by poultry practitioners. 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

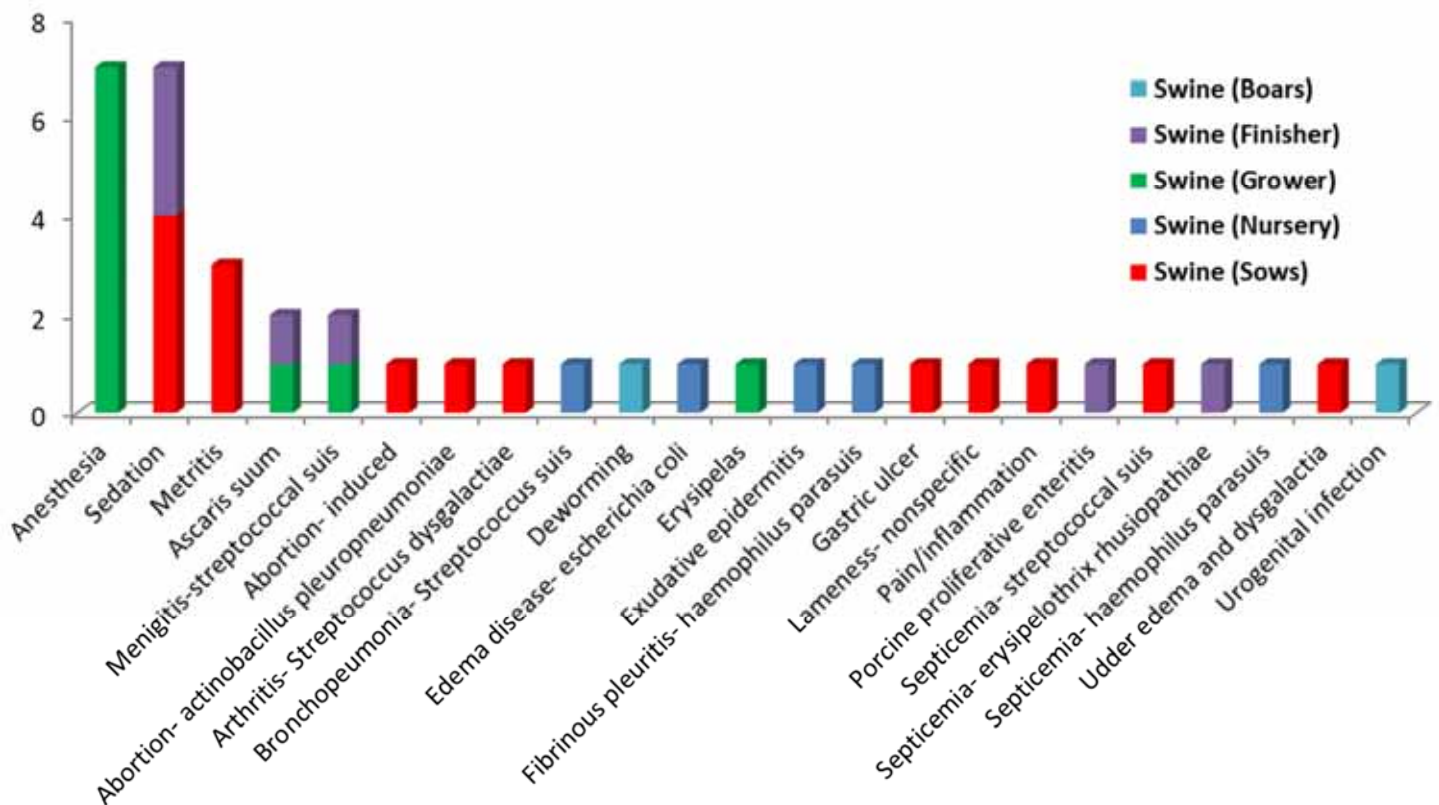
May 1, 2022 – April 30, 2023



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.

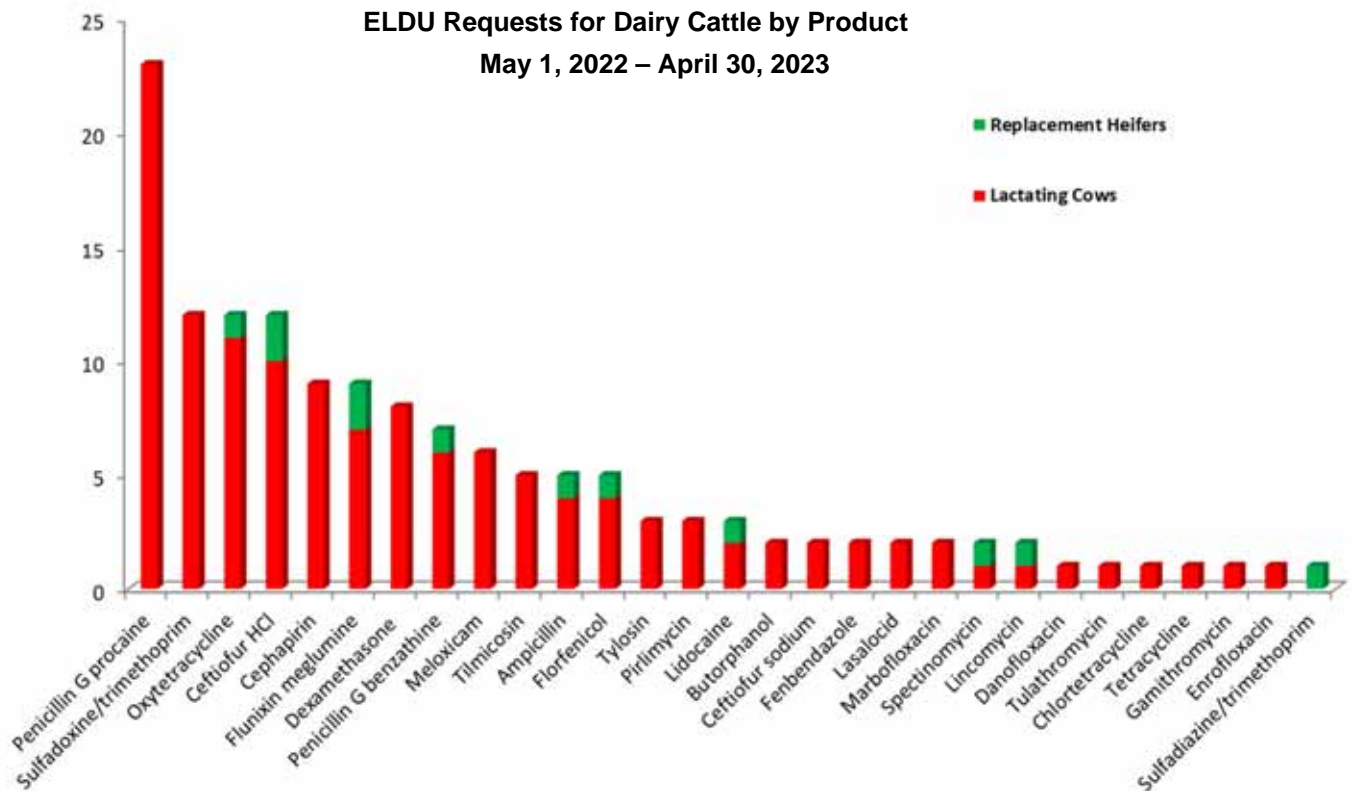


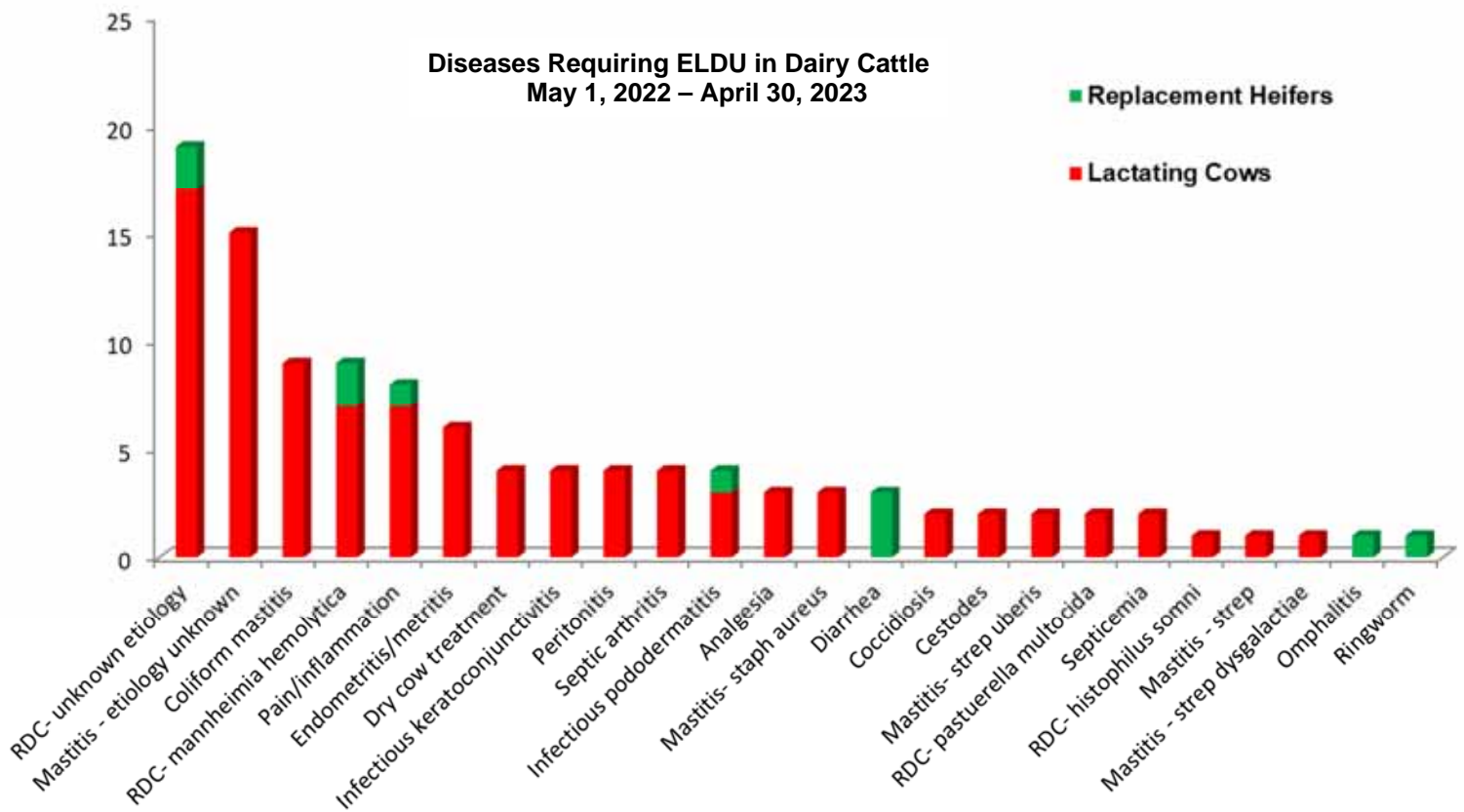
Diseases Requiring ELDU in Swine
May 1, 2022 – April 30, 2023



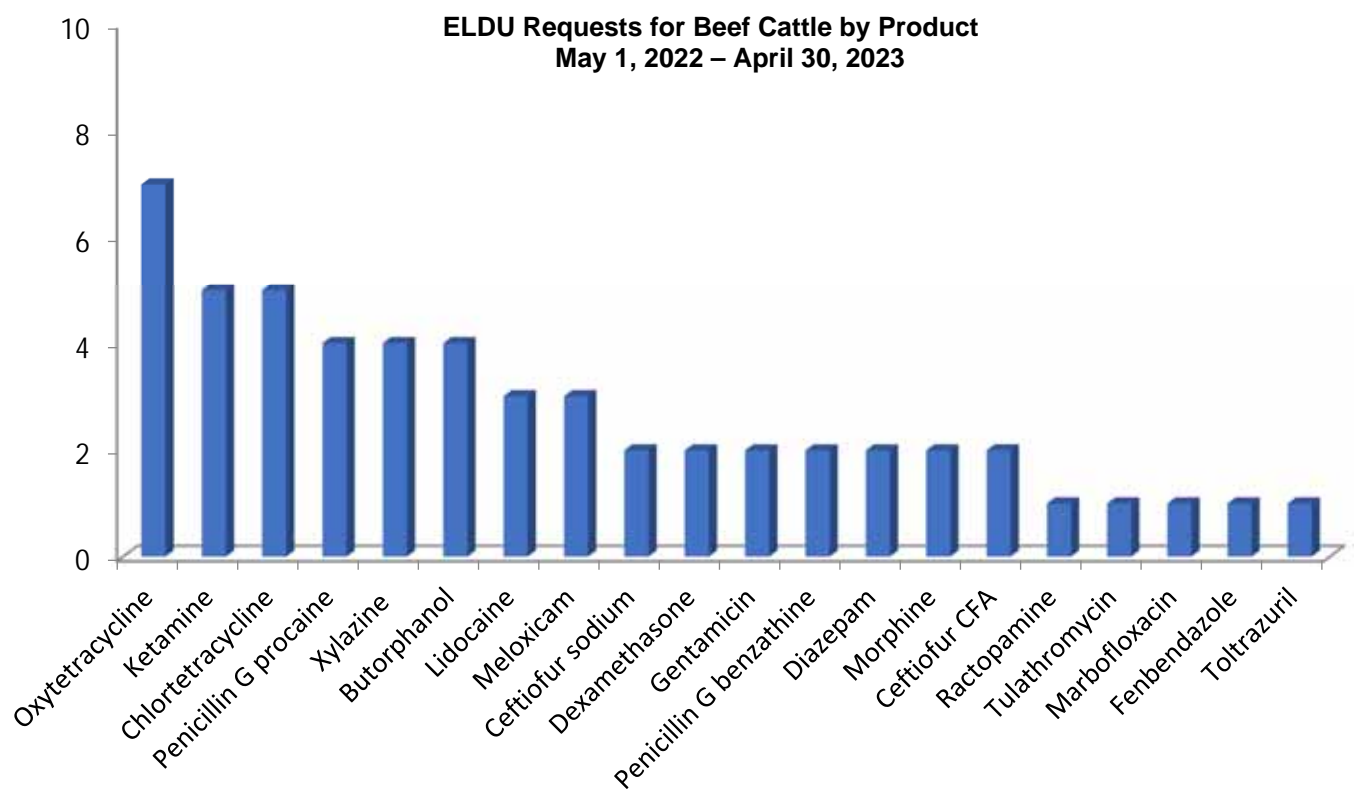
In dairy cattle, treatment of bovine respiratory disease (BRD) and mastitis continue to be the most common reasons for ELDU. Treatment of digital dermatitis and pain and inflammation are also important reasons for ELDU. Drug availability for the on-label treatment of mastitis continues to be a problem and makes it very difficult for dairy veterinarians to practice good antimicrobial stewardship.

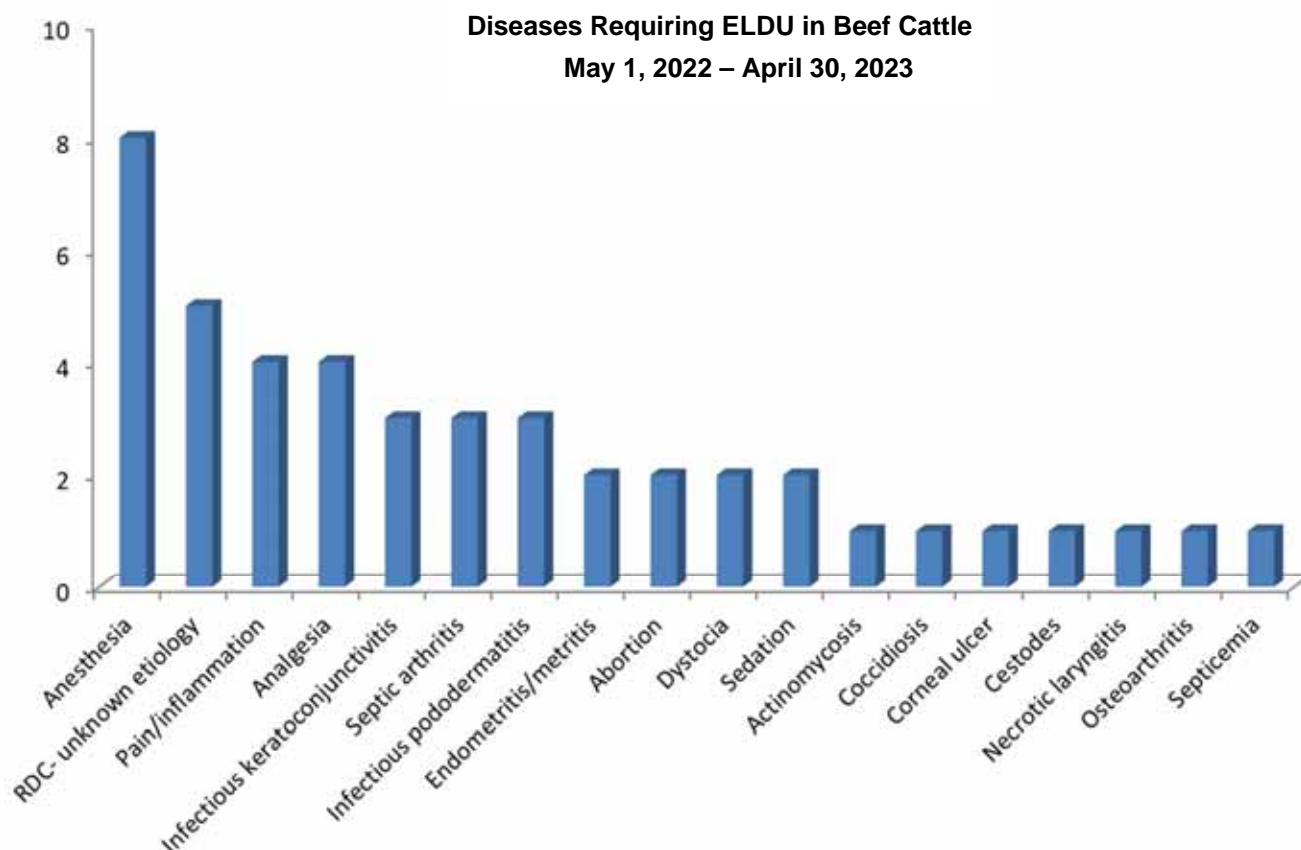
Feed mill errors and accidental exposures are always given emergency priority for dairy cattle. For these situations, CgFARAD™ personnel provide information on drug residue testing in milk and laboratories with the capability of rapid testing in order to get the impacted producer back online as fast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



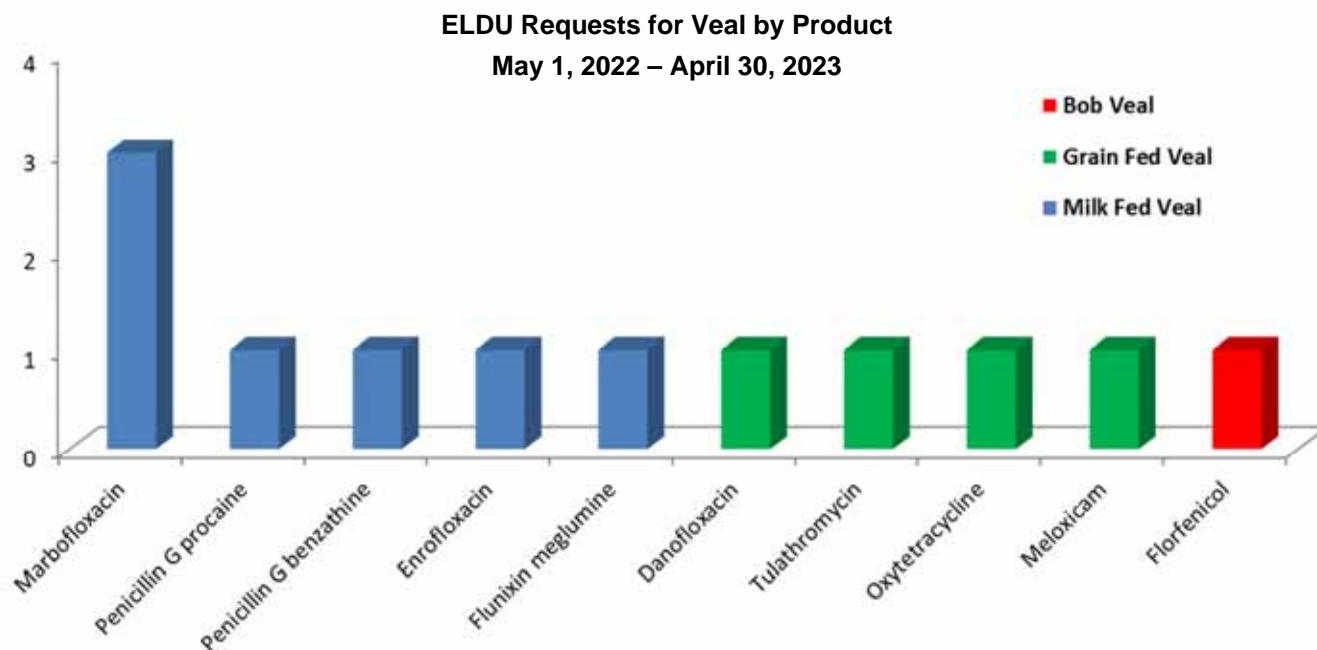


Requests for withdrawal information for ELDU in beef cattle are traditionally low. Cow/calf operations have animals that are far from the time of slaughter and feedlot operations typically do not use drugs in an ELDU manner.

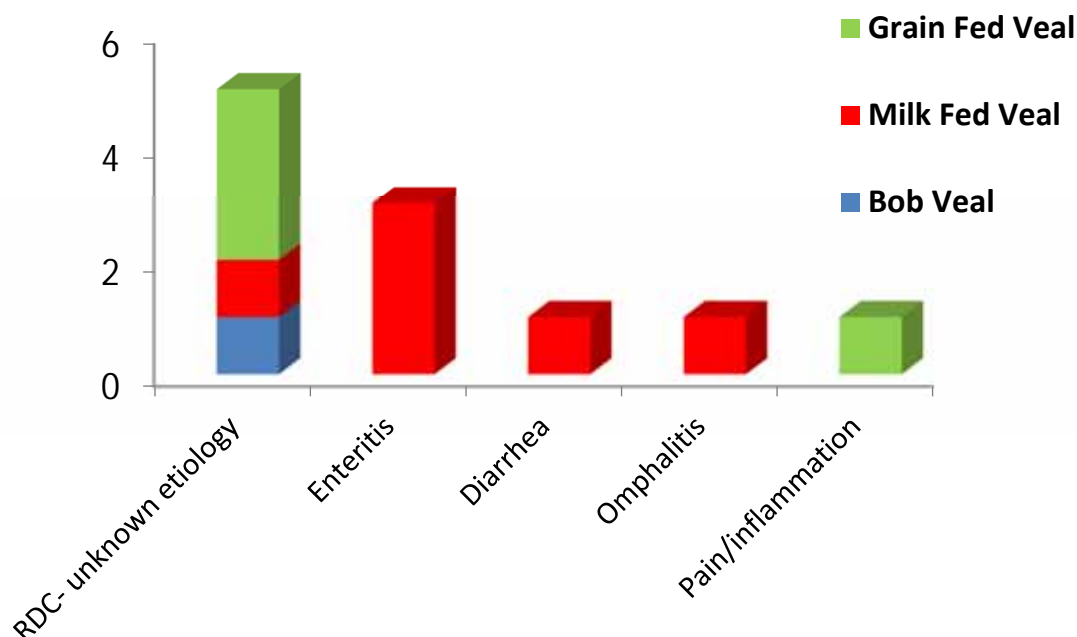




ELDUE in the veal sector focuses on treatment of infectious diseases. The Veterinary Drugs Directorate and the Canadian Food Inspection Agency have set guidelines for the MRLs applied to veal. Category I drugs and hormones will be enforced to the limits of detection of the CFIA assays and require greatly 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.

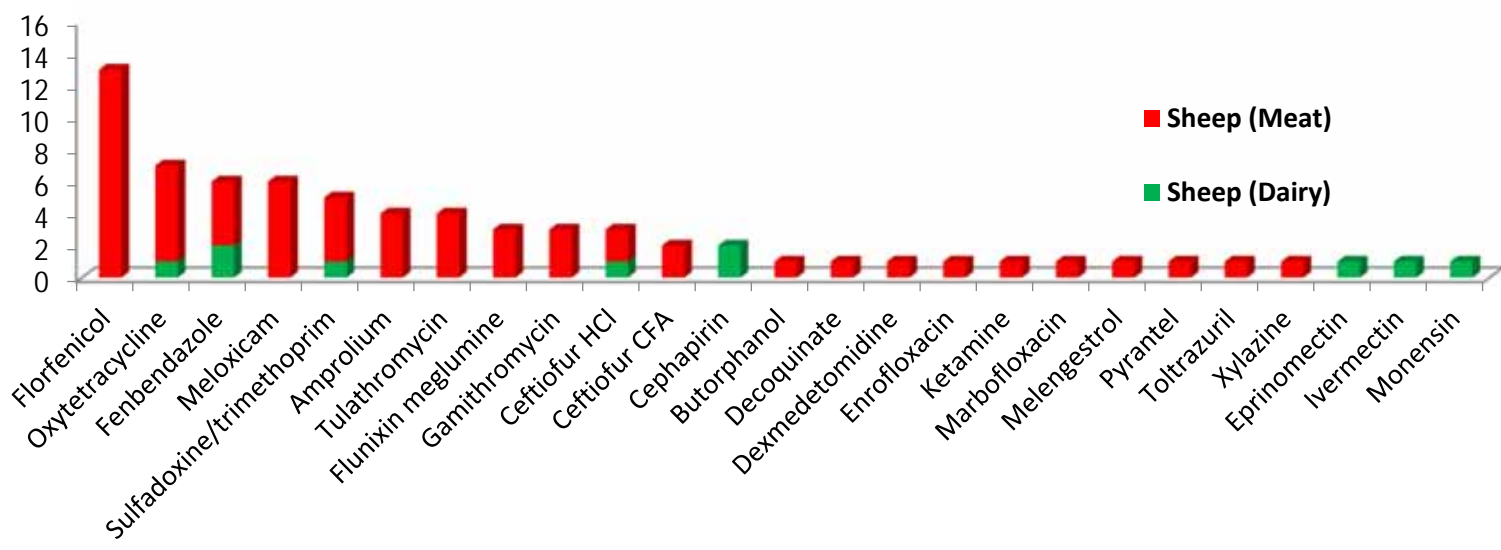


Diseases Requiring ELDU in Veal May 1, 2022 – April 30, 2023

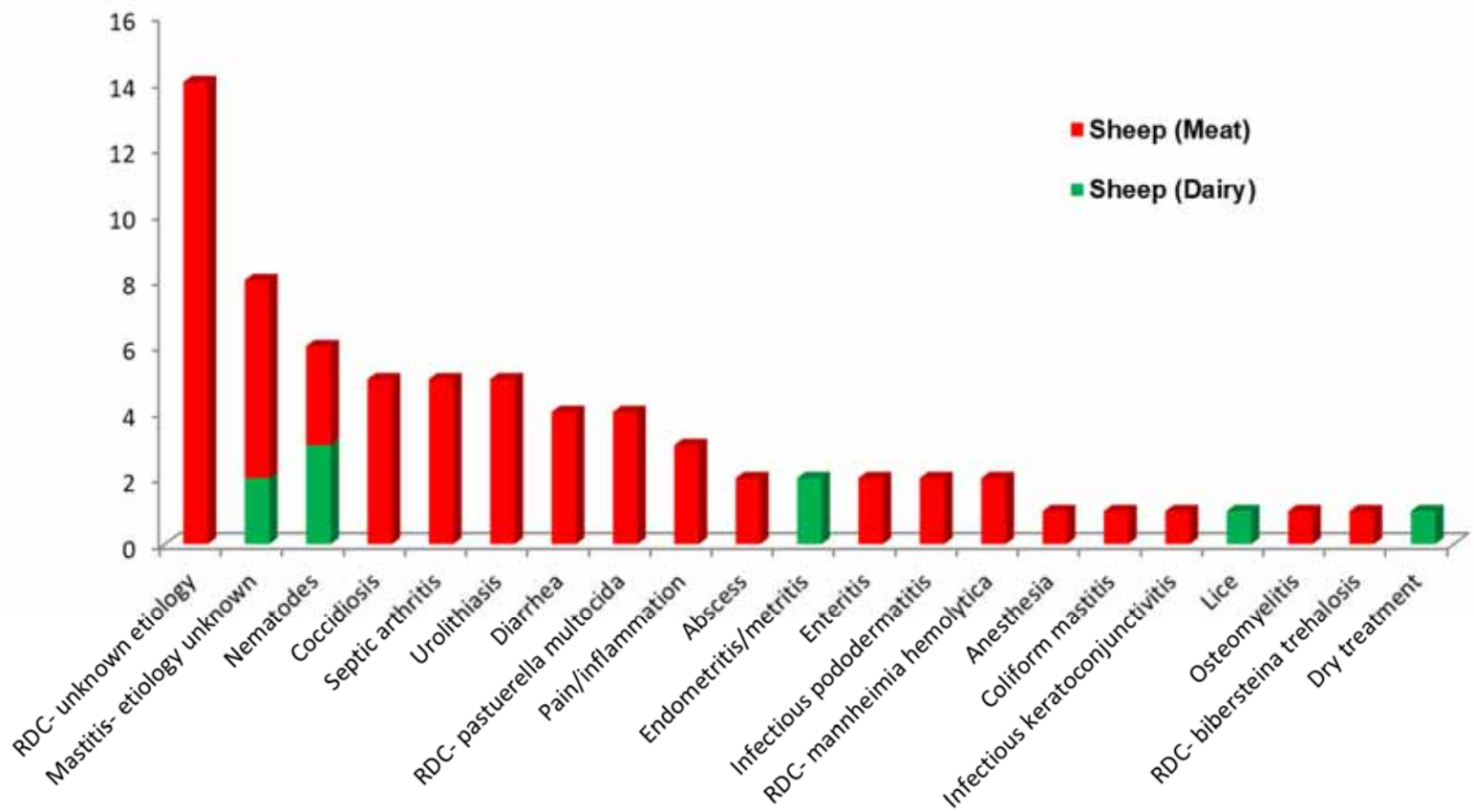


Due to limited drug approvals and bacterial and parasite resistance, antimicrobials, coccidiostats and dewormers are the most commonly used products for ELDU in sheep and goats. Even if parasite resistance is not present, residues in milk of lactating sheep and goats can be very problematic due to persistence 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.

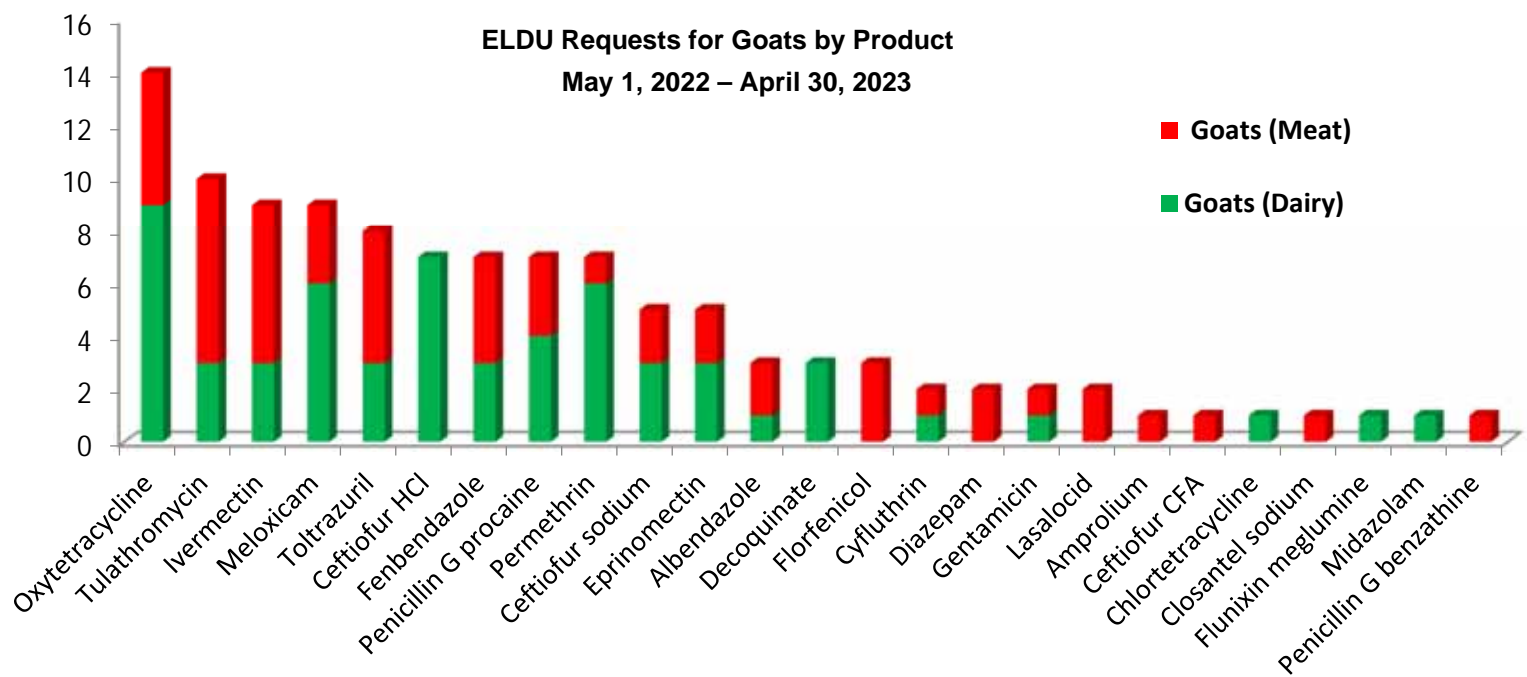
ELDU Requests for Sheep by Product May 1, 2022 – April 30, 2023

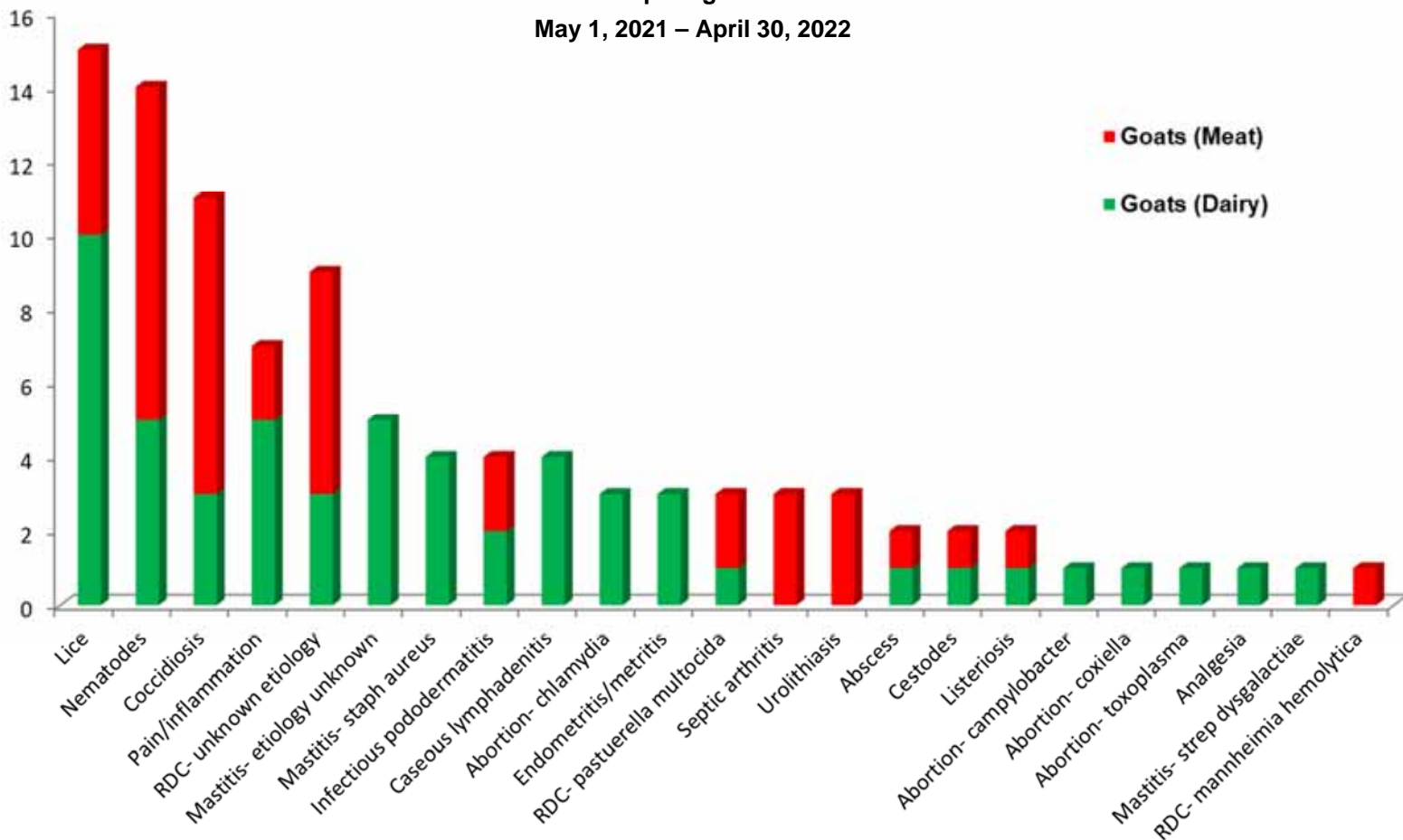


Diseases Requiring ELDU in Sheep May 1, 2022 – April 30, 2023



ELDU Requests for Goats by Product May 1, 2022 – April 30, 2023



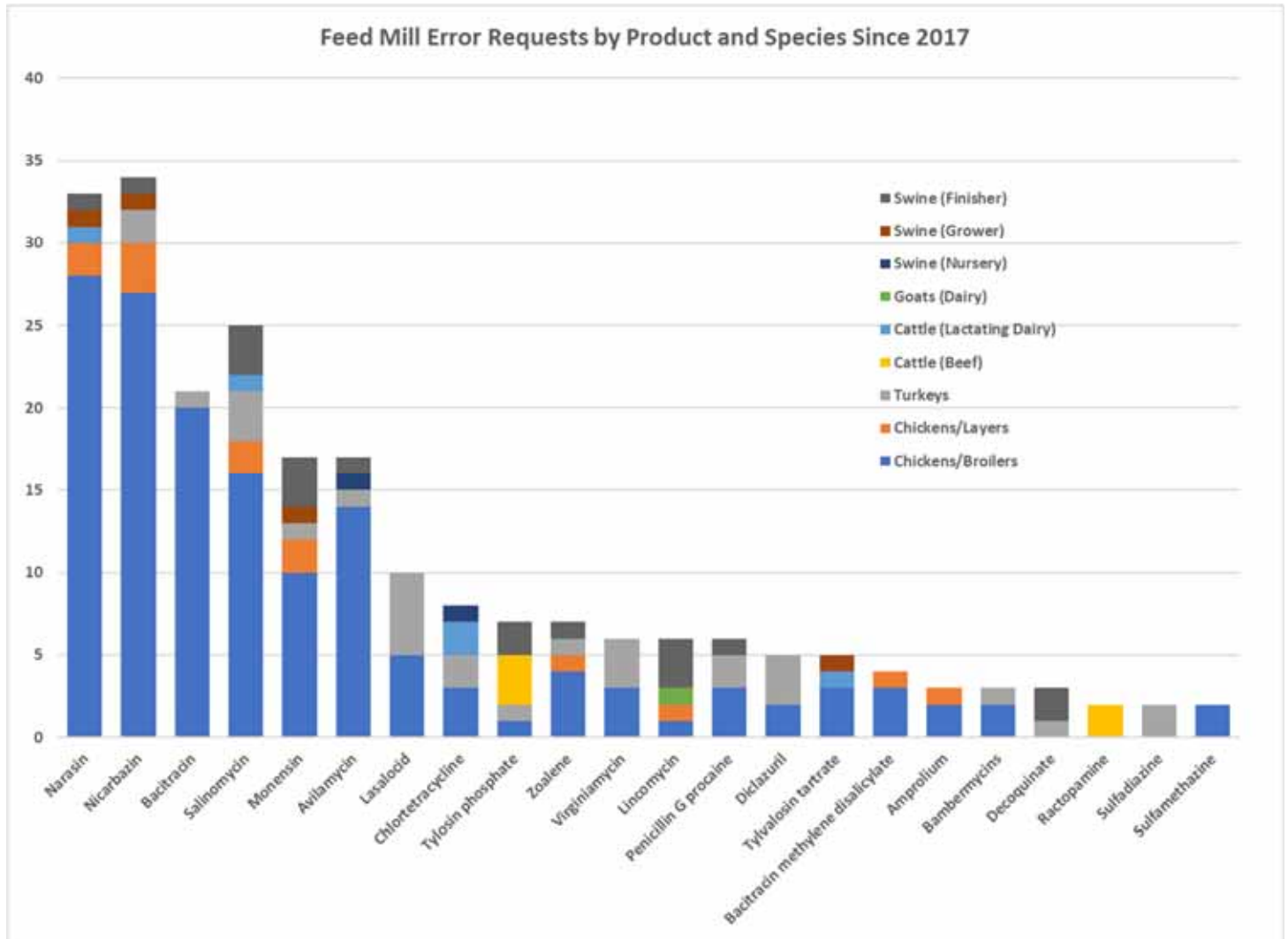
Diseases Requiring ELDU in Goats**May 1, 2021 – April 30, 2022**

With the launch of the new database in 2017, the CgFARAD™ became able to track requests for “feed mill errors” as we realized that this was not veterinarian instigated extra label drug use but reflected some of the most economically significant requests that we receive. Because of this, these types of requests are often emergencies and require CgFARAD™ personnel to respond quickly and often out of regular business hours.

Since 2017, the CgFARAD™ has received 197 requests involving feed mill errors, primarily involving poultry and the antimicrobials and coccidiostats used to control necrotic enteritis and coccidiosis. In many cases, we find that there is little to no risk of a detectable residue or human food safety issue. In some cases, we are able to advise dilution or redirection of the medicated feed so that it can still be used. Unfortunately, in some cases we do have to recommend testing of product from exposed animals to ensure human food safety or disposal of the feed.

This is a follow up from a grateful veterinarian in a case where poultry had already been processed before the feed error was identified: “Based on the risk assessment provided by Dr. Dowling and consultation with the Area as well as Science Branch, CFIA has no concern with release of the product list attached. They apparently reached out to CFIA feeds division who said the offal was still usable for edible product. So as far as we know, everything was still acceptable on the rendering end. I just wanted to mention also, in case it makes the story juicier for the veterinary students, that approximately \$250,000 to \$300,000 worth of product were implicated in this situation when you trace it through the supply chain. While we are working around the clock to get the product

out, we are still going to incur late delivery fines from some of the customers that will be an impact to the business (and will most likely attempt to be passed on to the feed mill)."



The chart below shows a comparison of ELDU requests by commodity over the past several years. Overall requests in 2022-2023 increased by 493 as compared to 2021-2022 and is the highest number of annual requests received. Broiler requests were noticeably higher than average. Turkeys also had higher use of the service.

The “other” category in 2022-2023 was comprised of five alpaca, one ostrich and one for bees reflecting the diversity of species groups served by CgFARAD™ team. However, most requests are for the major farmed animal species.

| Species | 2022-2023 requests | 2021-2022 requests | 2020-2021 requests | 2019-2020 requests | 2018-2019 requests | 2017-2018 requests | 2016-2017 requests | 2015-2016 requests |
|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Chickens/Broilers | 1704 | 1057 | 819 | 866 | 796 | 756 | 825 | 801 |
| Turkeys | 413 | 317 | 455 | 399 | 380 | 512 | 482 | 446 |
| Dairy Cattle | 172 | 190 | 230 | 274 | 266 | 261 | 232 | 266 |
| Broiler Breeders | 193 | 237 | 227 | 228 | 259 | 119 | 79 | 101 |
| Chickens/Layers | 213 | 325 | 330 | 145 | 144 | 137 | 92 | 69 |
| Goats | 114 | 156 | 153 | 134 | 241 | 189 | 196 | 90 |
| Sheep | 85 | 66 | 110 | 80 | 170 | 164 | 125 | 61 |
| Beef Cattle | 63 | 68 | 67 | 72 | 82 | 64 | 88 | 48 |
| Swine | 50 | 63 | 50 | 62 | 171 | 38 | 40 | 56 |
| Rabbits | 26 | 22 | 23 | 24 | 24 | 22 | 21 | 21 |
| Bison | 9 | 8 | 5 | 22 | 11 | 13 | 11 | 7 |
| Horses | 17 | 45 | 12 | 19 | 23 | 21 | 10 | 19 |
| Ducks | 22 | 24 | 48 | 16 | 20 | 5 | 6 | 13 |
| Veal Calves | 12 | 11 | 4 | 14 | 15 | 45 | 23 | 48 |
| Deer | 0 | 6 | 0 | 7 | 0 | 1 | 1 | 5 |
| Chukar Partridges | 16 | 6 | 1 | 6 | 10 | 6 | 8 | 19 |
| Elk (Wapiti) | 5 | 8 | 2 | 5 | 5 | 4 | N/A | 3 |
| Quail | 3 | 8 | 2 | 4 | 5 | 10 | 5 | 9 |
| Geese | 5 | 8 | 2 | 3 | 2 | 5 | N/A | 3 |
| Pigeons | 3 | 0 | 3 | 2 | 3 | 14 | N/A | 4 |
| Guinea Fowl | 5 | 9 | 1 | 2 | 2 | 8 | 1 | 0 |
| Pheasants | 0 | 3 | 7 | 2 | 6 | 6 | 6 | 4 |
| Fish | 5 | 2 | 1 | 0 | 1 | 4 | 1 | 2 |
| Other | 7 | 10 | 5 | 7 | 4 | N/A | 5 | 10 |
| Total | 3142 | 2649 | 2557 | 2393 | 2640 | 2404 | 2257 | 2105 |

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