FARAD: Current Updates and Future Directions

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Who is FARAD?

The Food Animal Residue Avoidance Databank (FARAD) is a university-based program supported by the U.S. Department of Agriculture (USDA)'s National Institute of Food and Agriculture (NIFA) that maintains and provides an array of resources for veterinarians, extension specialists, farmers, regulatory personnel and others who are the stewards of our nation's expansive commercial food animal industries and the growing number of small backyard livestock operations. Since 1982, this program has provided real time support service to veterinarians and related stakeholders.FARAD is supported and staffed by highly-trained veterinary pharmacologists, toxicologists, pharmacists, and food animal specialists at five colleges of veterinary medicine: North Carolina State University, Kansas State University, University of California-Davis, University of Florida, and Virginia Tech. Together, the FARAD team identifies, analyzes, and generates residue avoidance information to determine scientifically-based drug or chemical withdrawal advice in situations involving legal extra-label drug use, and accidental contaminationsin both major and minor food-producing animal species.

What does FARAD do?

FARAD performs a broad array of functions centered on the collection, evaluation, analysis, interpretation and dissemination of information related to the depletion of drugs and other chemicals in food animals. A key service offered by FARAD is the provision of advice on appropriate withdrawal intervals (WDI) following extralabel drug (ELDU) administration to food animals by veterinarians, in compliance with the Animal Medicinal Drug Use Clarification Act (AMDUCA). Professional FARAD staff at 3 call centers respond to WDI requests, where they utilize a comprehensive databank of pharmacokinetic data together with tools ranging from simple to complex modelsfor the accurate estimation of safe WDIs. In complex cases, such as those involving large numbers of animals or mathematical modeling, a FARAD directors/advisory group reviews the WDI advice. In some circumstances, such as ELDU specifically prohibited by FDA, FARAD is unable to provide a WDI. However, in all cases, FARAD strives to provide veterinarians with scientifically sound, current residue avoidance advice following ELDU or chemical exposure of food animals, within the provisions of the AMDUCA regulations.[1]

FARAD services

All FARAD resources are available at our publicly accessible website (www.farad.org). A majority of the information accessible at www.farad.org has been translated so that it is available in both English and Spanish language versions.

2023 Recent Updates

In 2023, FARADs highly trained scientists directly assisted with 5,833 inquiries impacting 5.8 million animals representing dairy, beef, swine, poultry, small ruminant and honeybee production systems. Compared to 2018, FARAD has had a 62% increase in inquiries. We have improved and updated our call submission form to help streamline responder efficiency and improve user experience with FARAD submission process.

Recent Publications

Publications from the FARAD team this yearincluded highlighting the impact of disease on WDI recommendations. Current withdrawal interval recommendations, which was determined on the basis of pharmacokinetic data obtained from a reference population of healthy animals, likely underestimate the time required for tissue clearance of the drug to below tolerances in diseased animals. Therefore, data obtained from both healthy and diseased animals should be considered to more accurately estimate the withdrawal interval for drugs administered to food-producing species under normal practice conditions, particularly for cows with decreased milk production and/or mastitis.[2] However, variability among clinical disease should be noted as an additional publication published by the FARAD team did not demonstrate any significant difference in ceftiofur whole milk concentrations in healthy vs mastitis quarters.[3]

In addition to cattle, FARAD is committed to improving pharmacokinetic knowledge of drugs used in minor species. A recent publication indicated that flunixin was not detected from any tissue above the bovine liver/muscle tolerance or lowest level of detection 96 hours in healthy goats.[4]

Use of Artificial Intelligence and Machine Learning

Researchers at FARAD are broadly involved with computational and quantitative modeling, elements of statistical and machine learning, artificial intelligence, as well as the development of predictive models in healthcare. The use of these tools allow FARAD to data mine global databases for international regulatory data to help US exports and to develop state of the art physiological based pharmacokinetic methods. This helps the responders make accurate, efficient and individualized recommendations for FARAD calls to veterinarians. Although the FARAD program was founded over 4 decades ago, we are committed to using 21st century science to answer manyquestions related to pharmacology and residue avoidance.

Future Directions

FARAD continues to be funded on a year-to-year basis and gratefully acknowledges stakeholders' support, notably the American Veterinarian Medical Association (AVMA). FARAD funding is provided through USDA-NIFA authorized through the FARM Bill.From 2018-2024, AVMA requested $2,500,000 for FARAD to carry out its vital services, which help keep the U.S. food supply safe, secure and affordable. FARAD was fully funded at the requested level from 2018-2023, but has suffered a devastating 20% reduction in budget appropriated for the 2024-2025 funding cycle.

Although FARAD has operated at its authorized amount since 2018, it has been unable to invest and grow the program. With the cut in funding for 2024, the FARAD program has lost key personnel and will have fewer scientists available to respond to inquiries. AVMA is urging increased authorization to $5 million for FARAD in the 2023 FARM Bill, in order to help FARAD attract and retain scientists, keep pace with inflation, invest in technology and conduct critical safety validation studies. The AVMA has released a position statement advocating for FARAD funding for 2025 and for the increase in funding for the upcoming Farm Bill.[5] Stakeholders are urged to contact their US Congressional Representatives to voice support for the FARAD program.

Acknowledgements

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