KEEP ANTIBIOTICS WORKING
The Campaign to End Antibiotic Overuse
www.KeepAntibioticsWorking.org

September 14, 2020

Dr. Chavonda Jacobs-Young
Administrator, Agricultural Research Service
U.S. Department of Agriculture
Jamie L. Whitten Building, Room 302-A
1400 Independence Avenue, Sw.
Washington, DC 20250

RE: Priorities for National Program 103: Animal Health

Dear Administrator Jacobs-Young,

We, the undersigned members of the Keep Antibiotics Working coalition (KAW), as well as collaborating organizations, write to share our priorities for the United States Department of Agriculture (USDA) Agricultural Research Service (ARS) Animal Health Program. Many of our organizations have consistently supported research by ARS and appreciate the efforts of the agency to address antibiotic resistance. However, we are concerned that ARS has failed to take into consideration abundant research showing that improved management practices rather than novel technologies provide the most effective means to maintain animal health and reduce both the need for antibiotics and associated resistant infections. We ask that you broaden the focus of antimicrobial resistance research in the next cycle of the Animal Health National Research Program to include rearing practices that lead to improved animal health and a reduced need for antibiotics.

Formed in 2001, KAW is a coalition of 18 public health, consumer, animal protection and other advocacy organizations that joined together to ensure that untreatable superbugs resulting from the overuse of antibiotics on farms do not reverse the medical advances of the past century.

Improving antibiotic stewardship and preventing disease are critical tools to address the antibiotic resistance threat. From our review of the ARS 2016-2020 Accomplishment Report,[1] we recognize the alignment of KAW's and ARS's goal to reduce the spread of antibiotic resistance. However, an inordinate number of projects in the animal health research portfolio focus on the discovery of novel technologies. The focus on "novel technologies that can provide alternatives to antibiotics" is narrow and misguided because it fails to address how live animal production practices are directly linked to animal health. When identifying research projects

[1]"Retrospective Assessment -National Program 103 Animal Health Accomplishment Report 2016-2020: USDA ARS." Accessed August 11, 2020. https://www.ars.usda.gov/animal-production-and-protection/animal-health/docs/retrospective-assessment/.

related to antimicrobial resistance in agriculture, we ask that ARS use a more inclusive framework that considers root causes of animal disease.

There is abundant evidence that much of the antibiotic use on farms is a default approach directly linked to practices that undermine animal health and welfare.[2] [3] These practices include weaning pigs and calves early, intense animal density, mixing animals from multiple sources, feeding inappropriate diets, routine physical alterations, use of genetically uniform herds or flocks which are bred for maximum production, and providing inadequate environmental conditions, including an absence of enrichment, while simultaneously downplaying temperature, social structuring and hygienic practices including air quality and waste management.[4] The European Medicines Agency and European Food Safety Agency examined the scientific evidence on reducing the need for antibiotics on farm and recommended "implementing farming practices that prevent the introduction and spread of disease".[5] We ask ARS to emphasize research which identifies farm practices that reduce the need for antibiotics, not misguided attempts to identify solutions for problems that could be avoided.

From Food and Drug Administration (FDA) sales data, we know that the bulk of medically important antibiotics in food animals are sold for use in cattle and swine and thus efforts to reduce the need for antibiotics should focus on these species. For cattle, USDA National Animal Health Monitoring System (NAHMS) surveys show that the two major reasons for antibiotic use are respiratory disease and liver abscess control.[6] Successful mitigation strategies exist that reduce the incidence and severity of these illnesses without the use of antibiotics. For respiratory disease (BRD), Mark Hilton, a clinical professor of beef production medicine in the Purdue University School of Veterinary Medicine, indicates that new drugs and vaccines may have questionable impact for control of the illness, but preconditioning of calves before arrival at a feedlot (increasing calf age of entry at the feedlot, keeping more calves on their home farm, ensuring intake of colostrum, etc.) is likely to have a significant impact.[7] Similarly, cattle are often given antibiotics for liver abscess prevention and control. However, simply increasing roughage in the diet results in a dramatic reduction in liver abscesses.[8]

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[2] Bengtsson, Björn, and Christina Greko. "Antibiotic Resistance—Consequences for Animal Health, Welfare, and Food Production." Upsala Journal of Medical Sciences 119, no. 2 (May 2014): 96–102. https://doi.org/10.3109/03009734.2014.901445.

[3] Honeyman, Mark S., "Demonstration of a Swedish sustainable swine production system in Iowa" (1998). Leopold Center CompletedGrant Reports. 116. http://lib.dr.iastate.edu/leopold_grantreports/116.

[4] Read "The Use of Drugs in Food Animals: Benefits and Risks" at NAP.Edu. Accessed August 11, 2020. https://doi.org/10.17226/5137.

[5] EMA (European Medicines Agency) and EFSA (European Food Safety Authority)." EMA and EFSA Joint Scientific Opinion on measures to reduce the need to use antimicrobial agents in animal husbandry in the European Union, and the resulting impacts on food safety (RONAFA)." [EMA/CVMP/570771/2015]. EFSA Journal 15(1), no. 4666 (2017): pp. 245. doi:10.2903/j.efsa. 2017.4666

[6] USDA APHIS | National Animal Health Monitoring System. "Current and Ongoing Projects" Accessed August 11, 2020. https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/monitoring-and-surveillance/nahms.

[7] Hilton, W. Mark. "BRD in 2014: Where Have We Been, Where Are We Now, and Where Do We Want to Go?" Animal Health Research Reviews 15, no. 2 (December 2014): 120–22. https://doi.org/10.1017/S1466252314000115.

[8] Reinhardt, C. D., and M. E. Hubbert. "Control of Liver Abscesses in Feedlot Cattle: A Review11Contribution No. 10-205-J from the Kansas Agric. Exp. Stn., Manhattan 66506." *The Professional Animal Scientist* 31, no. 2 (April 1, 2015): 101–8. https://doi.org/10.15232/pas.2014-01364.

Furthermore, antibiotics are often utilized to treat conditions such as lameness in dairy cattle. In a North American study published in 2012 researchers reported that lameness in dairy cows became so severe that a quarter of all cows were classified as lame and 33% were at risk of becoming lame.[9] However, lameness can be significantly reduced by simple practices such as utilizing pasture-based systems rather than freestall barns and making use of sand bedding rather than straw, as well as ensuring that dairy cows are sent to slaughter while they are still in fit condition rather than emaciated and weak.[10]

In pigs, the other major species that receives the bulk of medically important antibiotics as indicated by FDA sales data, recent research shows that increasing weaning age by less than a week leads to a more than 50% reduction in the need for antibiotic injections.[11] Phasing out certain physical procedures for piglets effectively reduces antibiotic use as well. In some studies, up to 90% of antibiotics were administered in the first 10 weeks of pigs' lives and associated with painful mutilations (especially surgical castration) and related gut and respiratory infections.[12] In Finland, Sweden, Denmark, Netherlands and Thailand, ending tail cutting of piglets has allowed for significantly reduced antibiotic use.[13]

These are just a few of the many welfare and management practices that, if implemented, could drastically improve the health of our livestock. One of the most effective ways to prevent disease and associated antibiotic use is to alter existing management factors that contribute to disease, rather than devising novel technologies to control diseases after they arise. It is important, however, that ARS focus on methods to reduce antibiotic use, but not eliminate it altogether. Antibiotics should be reserved to treat sick individual animals after disease is clinically diagnosed. Participation in "raised without antibiotics" marketing programs can act as a disincentive for farmers to treat sick animals and resolve underlying issues, which is not in the interest of animal welfare or antibiotic stewardship [14] and therefore should not be a focus of research for ARS.

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[9] Keyserlingk, M. a. G. von, A. Barrientos, K. Ito, E. Galo, and D. M. Weary. "Benchmarking Cow Comfort on North American Freestall Dairies: Lameness, Leg Injuries, Lying Time, Facility Design, and Management for High-Producing Holstein Dairy Cows." *Journal of Dairy Science* 95, no. 12 (December 2012): 7399–7408. https://doi.org/10.3168/jds.2012-5807.

[10] Adams, A. E., J. E. Lombard, C. P. Fossler, I. N. Román-Muñiz, and C. A. Kopral. "Associations between Housing and Management Practices and the Prevalence of Lameness, Hock Lesions, and Thin Cows on US Dairy Operations." *Journal of Dairy Science* 100, no. 3 (March 1, 2017): 2119–36. https://doi.org/10.3168/jds.2016-11517 ; Grandin, Temple. "Pro-active activism." Meat and Poultry, Aug 1991, p. 29. Op-ed.

[11] National Hog Farmer. "Weaning Age and Antibiotic Use for Pigs Evaluated," July 9, 2020. https://www.nationalhogfarmer.com/animal-health/weaning-age-and-antibiotic-use-pigs-evaluated. ; Sjölund, M., M. Postma, L. Collineau, S. Lösken, A. Backhans, C. Belloc, U. Emanuelson, et al. "Quantitative and Qualitative Antimicrobial Usage Patterns in Farrow-to-Finish Pig Herds in Belgium, France, Germany and Sweden." *Preventive Veterinary Medicine* 130 (August 1, 2016): 41–50. https://doi.org/10.1016/j.prevetmed.2016.06.003.

[12] Lekagul, Angkana, Viroj Tangcharoensathien, and Shunmay Yeung. "Patterns of Antibiotic Use in Global Pig Production: A Systematic Review." *Veterinary and Animal Science* 7 (June 1, 2019): 100058. https://doi.org/10.1016/j.vas.2019.100058.

[13] Stygar, A. H., I. Chantziaras, I. Toppari, D. Maes, and J. K. Niemi. "High Biosecurity and Welfare Standards in Fattening Pig Farms Are Associated with Reduced Antimicrobial Use." *Animal*, undefined/ed, 1–9. https://doi.org/10.1017/S1751731120000828.

[14] Karavolias, Joanna, Matthew Jude Salois, Kristi T. Baker, and Kevin Watkins. "Raised without Antibiotics: Impact on Animal Welfare and Implications for Food Policy." *Translational Animal Science* 2, no. 4 (October 1, 2018): 337–48. https://doi.org/10.1093/tas/txy016. ; Ritter, G. Donald, Gary R. Acuff, Gilles Bergeron, Megan W.

We recommend that ARS use the data collected by the USDA Animal and Plant Health Inspection Service (APHIS) via NAHMS[15] and FDA to identify drivers of antibiotic use and then identify, study, and report on practices that can be used to reduce disease and, in turn, the need for antibiotics. Decades of evidence indicate that improving management is the key to reducing the need for antibiotics and the associated resistance which impacts animal and human health. As Dr. Robert Redfield, Director of the Centers for Disease Control and Prevention, states in his forward to the 2019 Antibiotic Resistance Threats in the United States Report, "Stop relying only on new antibiotics that are slow getting to market and that, sadly, these germs will one day render ineffective. We need to adopt aggressive strategies that keep the germs away and infections from occurring in the first place." ARS should take this approach and look for ways "to stop infections from occurring in the first place" rather than focusing on novel treatment strategies and technologies.

ARS should follow evidence-based science which shows that the most effective tools for preventing disease are enhanced husbandry practices. Using data from FDA and APHIS, including antibiotic sales and use data, to determine which diseases and animals require attention will further good antibiotic stewardship practices, sound conservation, and fiscal responsibility.

Sincerely,

American Society for the Prevention of Cruelty to Animals

Antibiotic Resistance Action Center (ARAC) at the Milken Institute School of Public Health, George Washington University

Center for Biological Diversity

Center for Food Safety

Consumer Federation of America

Consumer Reports

Food Animal Concerns Trust

Food & Water Action

Humane Society Legislative Fund

Bourassa, Benjamin J. Chapman, James S. Dickson, Kenneth Opengart, Matthew Jude Salois, Randall S. Singer, and Carina Storrs. "Antimicrobial-resistant Bacterial Infections from Foods of Animal Origin: Understanding and Effectively Communicating to Consumers." Annals of the New York Academy of Sciences 1441, no. 1 (April 2019): 40–49. https://doi.org/10.1111/nyas.14091.
; Pesciaroli, Michele, Chiara Francesca Magistrali, Giovanni Filippini, Ersilia Maria Epifanio, Carmela Lovito, Lucia Marchi, Carmen Maresca, et al. "Antibiotic-Resistant Commensal Escherichia Coli Are Less Frequently Isolated from Poultry Raised Using Non-Conventional Management Systems than from Conventional Broiler." *International Journal of Food Microbiology* 314 (February 2, 2020): 108391. https://doi.org/10.1016/j.ijfoodmicro.2019.108391.

[15] USDA APHIS | National Animal Health Monitoring System. "Current and Ongoing Projects" Accessed August 11, 2020. https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/monitoring-and-surveillance/nahms.

Humane Society of the United States
Humane Society Veterinary Medical Association
Johns Hopkins Center for a Livable Future
Natural Resources Defense Council
Society of Infectious Diseases Pharmacists
Socially Responsible Agricultural Project
U.S. PIRG

cc (email only): Dr. Pam Starke-Reed
Dr. Jeff Silverstein