Bioethics Symposium: The Ethical Food Movement: What Does it Mean for Animal Agriculture?

465 Food production using animals: The roles of media coverage and societal values in shaping opinions about ethics. S. Priest*, *University of Nevada, Las Vegas.*

While the news media may set the agenda for public debate about science, they rarely cover ethics in any depth, and yet much news about science is fraught with ethical implications. Social amplification theory argues that media accounts can help amplify, as well as attenuate, risks. However, news producers do not create these effects independent of other influences. Both information subsidies and levels of cultural resonance are also important, and the technical definition of risk is not the only determinant of public opinion. Expectations and beliefs, including non-risk-related concerns such as perspectives on ethics, come into play. This is illustrated by data from a pilot study using student subjects that looks at initial reactions to the use of nanotechnology, genetic engineering, and synthetic biology with respect to genetic alteration of either cattle or bacteria; the results show that the type of organism involved is more important than the technology, indirectly suggesting the relevance of ethical considerations. While this small study may not be generalizable to a different population, it serves to remind us that public thinking is not solely a function of scientific understanding. The agricultural community could benefit by being more responsive to public (that is, consumer) opinion. Science itself cannot resolve what are essentially disagreements about values. When agriculturists and scientists blame the news media for negative public reactions, this can become a rationale for disregarding popular criticisms rather than taking them seriously. Not only is this ethically questionable, it is not necessarily in the strategic interests of the scientific and agricultural communities. Arguably, the GM food controversy arose in part because agriculture initially ignored the views of the public, including their ideas about ethical agricultural practices. It is a basic tenet of progressive public relations practice that communication should be 2-way and take public opinion into account.

Key words: animal agriculture, media role, bioethics

466 The (mis)appropriation of science in framing the ethics of animal production: Environmental issues. J. L. Capper*, *Washington State University, Pullman.*

Today's consumer has a heightened awareness of environmental issues relating to animal production. All foods have an environmental impact, yet the desire to "know where your food comes from" and idealistic views of "traditional" or "natural" production systems have led to product differentiation based on environmental claims. Various niche markets have reported that extensive systems are more environmentally sustainable. This exacerbates the challenge faced by the conventional livestock industry in providing sufficient milk, meat and eggs to feed the growing population while maintaining environmental stewardship. Yet low productivity within extensive systems significantly increases resource use per kg of milk or meat produced. For example, grass-based beef finishing systems require 77% more animals, 83% more land, 326% more water and emit 74% more greenhouse gases (GHG) per kg beef than corn-based systems using modern technologies. Scientific results are also being inappropriately used to further the agendas of anti-animal agriculture groups. A recent report from the FAO concluded that improved productivity and intensification are necessary to reduce livestock's environmental impact, yet these recommendations were overshadowed by the widely-reported (and since disproved) conclusion that animal agriculture accounts for 18% of global GHG emissions. This figure has since been incorrectly applied as representative of animal agriculture's impact in all regions, regardless of variations in efficiency. International averages have also been used to represent regional systems in media reports of comparative water use for animal production, leading to misinformation and consumer confusion. The popular assumption that transportation is a major contributor to the environmental impact of food production has furthered interest in "local food" and "food miles," despite the increased fuel costs of individual vs. mass food transport. Scientific principles and logic must be used to communicate with the consumer and improve their understanding of environmental issues, while maintaining respect for social and personal belief systems.

Key words: environmental impact, beef, local food

467 What did they just say? Science, politics, and animal welfare. J. A. Mench*, *University of California, Davis.*

Scientific information is becoming increasingly important not only in framing the debate about farm animal welfare but in propelling significant changes in public policy. The media, often unfamiliar with animal production practices, rely on scientific reports as critical background for their stories. Multi-national retailers use scientific information when they develop their animal welfare programs and farm auditing standards, and in making purchasing decisions. So that's a good thing, right? But hold on. Why does there seem to be so much confusion about what the science, and the animal welfare scientists, are saying? Of course, disagreement in science is normal, expected, and healthy. In any socially relevant field of science value judgments inevitably come into play when scientists attempt to reconcile the incomplete, complex and often contradictory information that results from research. As long as the values underlying these differences of opinion are transparent, both science and the public dialog about contentious issues are well served. Unfortunately, it seems instead that the contradictions and complexities inherent to farm animal welfare research are increasingly being ignored, or even worse skillfully (mis)appropriated, to advance particular agendas. This has ramifications for the credibility of animal welfare science, and also suggests that a new tack needs to be taken in communicating with the public about animal welfare issues and the role that science plays in addressing them.

Key words: animal welfare, science, ethics

468 The (mis)appropriation of science in framing the ethics of animal production: The use of antibiotics. M. D. Apley*, *Kansas State University, Manhattan.*

At the scientific levels of regulatory agencies, such as the Food and Drug Administration Center for Veterinary Medicine (FDA/CVM), the agricultural antimicrobial use debate revolves around risk assessments, surveillance data, movement of resistance genetics, and antimicrobial selection pressures. Unfortunately, we are sometimes hampered by data-gathering abilities that are more advanced than our interpretive skill sets. An example of a regulatory challenge is eliminating most of the uses of antimicrobials for improvement in rate of gain or feed efficiency as proposed in FDA/CVM Draft Guidance 209 (2010). This

action assumes that the lowest, longest antimicrobial exposures are a primary driver for resistant subpopulation selection in food animals. Without evidence for this assumption, the danger in this approach is that the precedent for the future regulation of prevention, control, and therapeutic uses of antimicrobials is not based on scientific evaluation of risk and benefit. Current FDA/CVM thinking related to microbial safety is outlined in Guidance Documents 152 and 159. But as the debate moves upward in the regulatory environment and spills over into the political arena, these scientific principles tend to be reduced to sound bites augmented by agenda-related dips into selected data. Additional key debates subject to scientific horseplay include the impact of modern production methods on disease incidence, the quantity of antimicrobials used in animal agriculture, transfer of resistant bacteria and resistance genetics between animals and humans, and in vivo vs. in vitro pharmacodynamic properties of antimicrobials. Oversimplification of the resistance issue is also used to mislead the public. But even with all of the scientific shortcuts in the public arena, the food animal industry cannot act as if we do not cause changes in susceptibility profiles with our antibiotic use; we can affect antimicrobial populations, and bacteria can transfer through the food chain. The challenge is keeping all parties on the high road when deciding the actual effects and what to do about them.

Key words: antibiotics, resistance, ethics