

Bioethics Symposium: Effects of science, government, and the public in directing the future of animal agriculture

32 Role of science in the future of animal agriculture. Paul H. Hemsworth*, *University of Melbourne, Parkville, Victoria, Australia.*

Animal welfare is a state within the animal. Scientists use 2 main conceptual frameworks for understanding animal welfare: biological functioning and affective state. These 2 frameworks were initially seen as competing, but more recently biological functioning is recognized to include affective experiences and affective experiences are recognized as products of biological functioning. While science provides us with the ability to understand how the body responds to physical challenges and affective states, our ability to monitor some affective states is under-developed. Thus most studies have used the biological functioning framework to infer compromised animal welfare, on the basis that suboptimal biological functioning accompanies negative affective states. There is increasing societal interest in providing domesticated animals with the opportunity for positive affective experiences and this will also be a major focus for animal welfare science in the early 21st century. Furthermore, animal welfare science will continue to identify conditions and strategies to prevent and ameliorate negative states in farm animals, and extend the range of animal welfare indicators for use on-farm in risk assessment and management, welfare benchmarking and welfare auditing. Science thus should provide the facts, but what society, groups or individuals do with these facts is a philosophical decision. Exclusion of science can result in emotive or self-interested arguments from sectional groups dominating community debate. This is not to say that such arguments should be ruled out; quite the reverse, as they reflect, in part, current community values. However, they should contribute to, not pre-empt, the debate. Furthermore, these ethical questions should include other considerations, such as our duties toward animals and human health, economic, social and environmental consequences. Thus, in resolving the question of whether or not a particular animal use is acceptable, science provides the means to understand the impact of each animal use on the animal and has a prominent role in underpinning decisions on animal use and the attendant conditions and compromises.

Key Words: animal welfare, science, role

33 Update on the US Technical Advisory Group to the International Organization for Standardization (ISO) Working Group 16—Welfare of Food-Producing Animals. Craig A. Morris*, *United States Department of Agriculture, Agricultural Marketing Service, Washington, DC.*

World Organization for Animal Health (OIE) Member Countries mandated the organization to take the lead internationally on animal welfare and, as the international reference organization for animal health, to elaborate recommendations and guidelines covering animal welfare practices, reaffirming that animal health is a key component of animal welfare. However, there can be impediments to the ability of the OIE to assure worldwide adherence to the codes they develop; especially in the developing world. In 2011 to respond to this issue, the International Organization for Standardization (ISO) and the OIE established a Memorandum of Understanding to strengthen cooperation in all fields of mutual interest, including animal welfare. The ISO is a worldwide federation of national standards bodies and the work of preparing ISO standards is usually carried out through ISO Technical Committees. The ISO took on this work to help facilitate the international adoption of OIE codes, such as those dealing with animal welfare, through the private

sector implementing seller or buyer requirements. The ISO committee structure is broken down into Technical Committees (TCs) and the ISO assigned this work on animal welfare to TC34 (Food Products) with the creation of a Working Group (WG) 16. To participate in WG16, experts from the United States formed a Technical Advisory Group that is chaired by Dr. Morris of the United States Department of Agriculture. WG16 is currently working toward the development of the ISO's first Technical Specification (TS) in this area of animal welfare and plans for it to be complete by the end of 2015. The objective of this work is to have the private sector use this TS to not only further the international adoption of the OIE codes, but serve to better the living conditions of animals raised for food around the world while not impeding the international trade of animal products. This presentation will update attendees on the progress being made by the ISO in this important area.

Key Words: bioethics, animal welfare, ISO

34 Effect of consumer choices on food animal production practices in the future. Charlie Arnot and J. J. Jones*, *Center for Food Integrity, Gladstone, MO.*

The application of technology in food and agriculture has provided countless benefits to society. Innovation and technology help us meet one of humanity's most basic needs—the need to provide safe, nutritious food for our children and our children's children. Today, our challenge is not just better technology, but finding better ways to support the informed public evaluation of those technologies and our food production system. Consumer choice is playing an increasing role in the food system. No matter what science says, many issues remain contentious because the social decision-making process is complex. The ability to break down the communication barriers is critical to fostering informed decision making that encourages technology and innovation in society's best interest. The Center for Food Integrity's 2014 research, combined with previous research provides great insight into how consumer choice—consumer decision-making—will have many effects on animal agriculture.

Key Words: consumers, choice, food

35 US consumer perceptions of animal use for food, recreation, and more: Are feelings about Bambi the deer, Bessie the cow, and Buster the dog more related than we thought? Elizabeth Byrd* and Nicole Widmar, *Purdue University, W. Lafayette, IN.*

This research seeks to link sentiments about various animal uses, such as pets, circus animal, and racing dogs, to sentiments and perceptions of livestock animal welfare. A national-scale survey was used to explore linkages between animal uses and species. Researchers, marketers and livestock industries alike have also sought to uncover relationships between observable demographics (sex, age, education, pet ownership) and views of livestock practices. If owning a pet and/or interacting with animals in general is related to increased concern for livestock welfare, what else may be affecting consumers' perceptions of livestock rearing? Is the approval of using animals for working dogs, such as service/therapy or police/military, related to sentiments toward farm animals? When asked, 92% of US consumers agree it is acceptable to have animals as pets or for service/therapy animals. A total of 93% of US consumers agree with using animals to produce eggs, but

only 67% agree with keeping zoo animals. Is the approval of hunting and various hunting practices related to concern for food/farm animal welfare? More broadly, are sentiments toward animal species related and does it depend whether or not they are produced and consumed for food or even the perceived average age of those animals? Do those respondents who believe dairy cows have a long life expectancy on a farm also report increased concern for their welfare? Respondents reported the average life expectancy of a dairy cow on a dairy farm to be 9.71 years and the average life expectancy of an egg laying hen to be 5.29 years. Understanding how consumers' sentiments toward animal uses are related to each other and to key socio-demographic factors will provide valuable insight into the minds of consumers and provide guidance for the agricultural industry in understanding, communicating with, and meeting the demands of consumers.

Key Words: animal use, consumer demand, preferences

36 Willingness to pay for pork chops and chicken breasts: Are hunters (and those who approve of hunting) different (from the average US consumer)? Elizabeth Byrd*, Nicole Widmar, and John Lee, *Purdue University, W. Lafayette, IN.*

Consumers, in general, are concerned about how their food, especially meat, is raised. This concern extends to animal welfare practices and the social and environmental impacts of production. Recently, studies have focused on consumer willingness to pay (WTP) for various production process attributes, such as gestation crate-free hog production, cage-free egg production, and rBST-free milk production. However, most studies have been limited to general samples of US residents or consumers. Other research has linked demographics, including pet ownership, to increased concern for pig welfare (McKendree, Croney, and Widmar, 2014). Relationships with animals, even those that are not consumed for food, are related to consumers' level of concern for farm animal welfare. Studies have explored the public's acceptance of lethal management of wildlife and feral animals. We seek to determine how views of wild animals, both consumptive and non-consumptive, may affect the level of concern for livestock animal welfare. Concern for animal welfare can extend to include WTP for attributes of the production process that affect animal welfare. The next step is to determine how interactions with wild animals, in terms of hunting (or approval of hunting), are related to concern for farm animal welfare. Preliminary results indicate those who regularly hunt are willing to pay less for animal welfare attributes such as cage or crate free production and antibiotic free production. For example, non-hunters have a mean WTP of \$3.13/lb for USDA-verified crate-free pork chops, but those who regularly hunt are not WTP anything. Likewise, non-hunters are willing to pay more than twice what hunters are willing to pay for USDA-verified antibiotic-free production. The goal of this analysis is to determine how consumers' outdoor activities and key demographic factors (sex, pet ownership, and opinions on

hunting) are related to the relative importance of food values for meat purchases and WTP for animal welfare production process attributes.

Key Words: animal welfare, consumer demand, preferences

37 Willingness to pay for pork chops and bacon: Effects of perceived farm sizes and information shocks. Ann Cummins*, Nicole Widmar, Joan Fulton, and Candace Croney, *Purdue University.*

This research utilizes a willingness to pay (WTP) model for a variety of pork, specifically pork chop and bacon, attributes. There has been an identified gap between consumer's perceptions and the reality of even something as simple as the size of pig farm which pork originated from. This presentation explores the effect of the perceived size of pig farm on consumers' WTP for verified pork attributes. The data for this analysis is from a nationally representative survey (in terms of age, sex, income, and region of residency). A total of 1,004 respondents and 10,040 choice situations were obtained. Along with a collection of demographic, educational, perceptions about farming, and other information is used as part of the analysis, participants experienced a simulated shopping experience (designed choice experiment) where they made purchasing decisions about certified pork products with different attributes. The attributes included price per pound, permitted use of individual crates or stalls, farm size, antibiotic use, and certification entity. The choice experiment methodology is used for this analysis and the random parameter logit model is used to estimate the consumers' WTP for the different pork product attributes. The first set of analyses look at the average WTP for these two pork products in relation to individual consumer's self-reported perception of the farm size on which they believe most pigs raised for pork are raised (which they provided before entering the simulated shopping experience). The second set of analyses uses the choice experiment data, but in addition uses an information shock, in which a subset of approximately half of the respondents were randomly selected and given an information shock with included NASS statistics on the true pig farm size in the U.S. These responses are then compared between perceived size of pig farms in the US, the information shock, and consumers' WTP for pork verified attributes including farm size. We find that certain consumer segments are willing to pay statistically significant and positive amounts for the verified attributes studied. Further, there are differences in those WTP values amongst pork products, verifying parties, and the specific attributes in question.

Key Words: bacon, pork chops, willingness to pay