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The Future of Animal Agriculture: 2030

One in a Series of Educational Programs Presented by the

Future Trends in Animal Agriculture

United States Department of Agriculture
Jefferson Auditorium, South Agriculture Building
Washington, DC

December 2, 2009

Revised

Edited by

Richard Reynnells
USDA/NIFA/PAS

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Preface

David R. Brubaker
Agri-business Consultant

We all view reality through our own personal filters, and we are captives, intellectually, of our educations, our life experiences and our biological strengths and weaknesses. Consequently, we generally (and often unconsciously) tend to reject information that is at odds with our prejudices and preconceptions, and are quick to accept and integrate new information or opinion that reinforces what we already believe.

Philosopher Eric Hoffer, writing in *The True Believer*, posited that the practical organization offers “opportunities for self-advancement, and its appeal is mainly self-interest,” as opposed to mass movements, which he saw as appealing to those “not intent upon bolstering and advancing a cherished self, but to those who crave to be rid of an unwanted self.”(1). There are, of course, many exceptions to Hoffer’s generalizations. Many business enterprises are operated in the public interest, and executives at non-profit organizations who put their own self-interest above all else, are not, in my experience, rare.

These factors are part of the human condition, and are not, in themselves, completely negative. They can spur focus, creativity and innovation. Our self-interest or ideology can blind us, leading to restricted, oversimplified thinking that rejects incongruous new ideas, rather than considering them.

We are all “true believers” or “fanatics,” at least in part. We may tout the organizational line, ever mindful that each discussion may be of help to us personally. We may skew data to serve our personal needs and aspirations.. Given the increasing velocity of change in society, this type of thinking is no longer sustainable: We need to focus upon the best estimate of what is true, and how our decisions impact society over the long-term. Who could have imagined, in 1900, the emergence of the Internet? What lies ahead for us in the next decade, the next century: Tissue-cultured meat as the norm? Teleportation? How might our world change? We need to move beyond immediate self-interest and our own psychological and biographical chains that conceal new possibilities. We need to consciously seek “enlightenment,” or as Kant put it: “...man’s emergence from his self-imposed immaturity. *Sapere Aude!* Have the courage to use your own understanding – that is the motto of enlightenment.” (2)

Future Trends in Animal Agriculture offers us a chance to step out of our usual, restricted, roles and to speculate and imagine the future. We should take advantage of this opportunity.

1. Hoffer, Eric. The True Believer, Mentor Books, 1962.
2. Kant, Immanuel. Perpetual Peace and Other Essays, Hackett, 1983.

SPONSORS

The organizing committee gratefully acknowledges support from:

All speakers for their significant time and effort, with all waiving the requirement for reimbursement of expenses;

The American Humane Certified program for providing the coffee break;

Financial support of the USDA Animal and Plant Health Inspection Service for providing the hearing impaired translator, the extra security and the publicity posters;

USDA National Institute of Food and Agriculture (NIFA) for providing the on-site proceedings and sending the revised proceedings to a large number of interested persons.

The **Mission** of the FTAA is to foster and enhance balanced and enlightened public dialogue on topics related to the nature and future of animal agriculture.

The **Vision** is: to develop programs that are inclusive and national in scope, with the committee consisting of individuals from organizations representing academia, agribusiness, animal welfare, environment, university, government and others. The FTAA seeks to present timely issues in a balanced, innovative and thoughtful manner. The Committee also seeks to enhance public dialogue and understanding about the nature and future direction of animal agriculture, and the impact of their personal decisions on this process.

FTAA **Goals** are: 1. To facilitate genuine collaboration and the ability of farmers to produce food for society, while improving animal well-being. 2. To provide opportunities for dialogue and understanding of animal well-being, environmental and other issues in an atmosphere of mutual respect of consumers, farmers, advocates, commodity organizations, and others. 3. To provide information to identify critical animal production issues and enhance greater understanding of societal desires and trends that impact production agriculture.

Welcome

Kathleen Merrigan, Deputy Secretary
US Department of Agriculture

Biographical information

Before rejoining USDA, from July 2001 until she was confirmed by the U.S. Senate for this position Merrigan served as an Assistant Professor and Director of the Agriculture, Food and Environment Program at the Friedman School of Nutrition Science and Policy at Tufts University in Boston. In 2008 she was an expert consultant to the Food and Agriculture Organization (FAO) of the United Nations in Rome.

Merrigan served as Administrator of the Agricultural Marketing Service from 1999-2001. From 1994-99 she worked as a Senior Analyst for the Henry A. Wallace Institute for Alternative Agriculture, a Washington, DC-based organization which promotes research and education in sustainable agriculture. She was a Senior Staff Member of the U.S. Senate Committee on Agriculture, Nutrition, and Forestry from 1987-92, where she worked as the Chief Science and Technology Advisor to [then] Chairman Patrick Leahy (D-VT). During that time she helped develop the Organic Foods Production Act of 1990. She worked on pesticide issues as a Special Assistant to the Chief of Regulatory Affairs for the Texas Department of Agriculture, based in Austin, from 1986-87.

Merrigan served on USDA's National Organic Standards Board from 1995-99 and on the Department's Facilities Reform Commission from 1997-99.

Merrigan holds a Ph.D. degree in environmental planning and policy from the Massachusetts Institute of Technology, a Master of Public Affairs degree from the University of Texas, and a B.A. degree from Williams College.

History of the Future Trends in Animal Agriculture

Ken Klippen
Executive Director of Government Relations
and Animal Welfare
Sparboe Farms

Paper not provided. See power point section for slides.

What Will Animal Agriculture Look Like: the Role of Government

Representative David Scott
Chairman of the House Livestock, Dairy, and Poultry Subcommittee

Biographical information

Congressman David Scott is the U.S. Representative for the 13th District of Georgia. He is serving in his fourth term. Congressman Scott sits on a number of influential committees including:

The Financial Services Committee
The Foreign Affairs Committee
The Agriculture Committee as Chairman of the Livestock, Dairy and Poultry Subcommittee.
NATO Parliamentary Assembly

Congressman Scott is providing leadership on the following issues in Congress:

- Led the fight to pass Children's Health Insurance Protection Act extension
- Continues the fight to bring commuter rail to the Atlanta suburbs
- Fought to direct more stimulus funding to foreclosure relief
- Authored the law providing student loan repayment assistance for public attorneys
- Authored the law recognizing Fathers Day by flying the flag
- Helped establish the Arabia Mountain National Heritage Area
- Authored the law to allow Georgians to request two free credit reports annually

GEORGIA LEGISLATURE

Congressman Scott served in the Georgia House of Representatives 1974 - 1982 and the Georgia Senate

1983 - 2002. As a State Senator, he authored the law giving breast cancer patients and their physicians the right to determine their length of stay in the hospital and their level of medical treatment. In addition, he authored the law creating a moment of quiet reflection each morning in public schools. He also authored the law that keeps landfills from being developed in residential neighborhoods.

PERSONAL

David Scott was born in Aynor, South Carolina and attended elementary school in Scranton, Pennsylvania, Junior High School in Scarsdale, New York, and High School in Daytona Beach, Florida. He received his BA degree with honors from Florida A&M University. He received his MBA degree with honors from the Wharton School of Finance at the University of Pennsylvania.

Alternative Viewpoints on Food Animal Production and Processing

Ron DeHaven
American Veterinary Medical Association

Paper not provided. See power point section for slides.

Panel: What Will Animal Agriculture Look Like in 2030?

Andrew Gunther
Animal Welfare Institute

Paper not provided. See power point section for slides.

Panel: What Will Animal Agriculture Look Like in 2030?

New Technologies in Animal Agriculture—Compelling Benefits for Nutrition, Public Health, Animal Welfare and the Environment

Barb Glenn, Ph.D.
Biotechnology Industry Organization

Critical issues facing agriculture globally include delivery of human health care, reduction in hunger, and increasing energy supply, all in a sustainable manner with optimum animal welfare and minimal negative impact on the environment. The United Nations (U.N.) predicts the world population will exceed 9 billion by mid-century and has called for a 100 percent increase in world food production by 2050¹. According to the U.N., this doubled food requirement must come from virtually the same land area as today. The U.N. Food and Agriculture Organization (FAO) further states that 70 percent of this additional food must come from the use of new and existing agricultural technologies. The FAO has also estimated that in the same time frame, livestock production would produce nearly 20 percent of global greenhouse gas emissions.² Notwithstanding the environmental challenge, by the end of the next decade, the livestock sector is expected to provide 50 percent of global agricultural output on a value basis.³ Therefore, the need for innovation through new technologies in animal agriculture is essential for the future of citizens, communities and natural resources. People worldwide do and will continue to benefit from biotechnology through enhanced quality of life and health, and through more affordable and sustainable supplies of food, feed, fiber, fuel and industrial products.

New technologies in animal agriculture will be necessary for sustainably meeting the global challenges. Innovation in new agricultural technologies, including animal, plant, and microbial biotechnology, will provide solutions, given the dramatic future demands for food, health and energy. Agricultural biotechnology is an important contributor to sustainability and is integral to meet: world food, feed, bioenergy, and fiber demands; producer needs; animal welfare considerations; and desirable land use patterns. Animal biotechnology is set to become an essential tool in the effort to meet the growing global demand for meat and milk. Advances in animal biotechnology can help livestock producers increase productivity to meet future nutritional, energy and fiber needs while maintaining the quality of life for animals used for food, fiber, work, or pleasure, and decreasing environmental impacts. In addition, adoption of new technologies will increase competitiveness of American agriculture.

Genetic improvement of livestock will continue to be a primary driver of sustainable animal agriculture in the future. Historically, traditional animal breeding and genetics has provided significant improvements in productivity, health and well being of livestock. Advances in livestock genomics have further enhanced the ability to enhance specific traits for production of consistently high quality foods that are safe. Beyond genomics, genetic engineering (GE) and cloning of livestock are new methods in the continuum of technologies for breeding livestock. A key aspect of animal genomic research is using new technologies such as biotechnology⁴. The U. S. Department of Agriculture's Blueprint states that "In the long-term,

¹ World Population Prospects: The 2006 Revision. 2007. United Nations Population Division, New York.

² Steinfeld, Henning, Gerber, Pierre, Wassenaar, Tom, Castel, Vincent, Rosales, Mauricio, and de Haan, Cees, *Livestock's Long Shadow: Environmental Issues and Options*. Food and Agricultural Organization of the United Nations. 2006.

³ FAO Animal Production and Health Division, *The Global Livestock Sector- A Growth Engine*. Food and Agriculture Organization of the United Nations. 2008.

⁴ USDA, 2007. Blueprint for USDA Efforts in Agricultural Animal Genomics 2008-2017.

animal genomics efforts will lead to efficient and economical production of human pharmaceutical proteins in animals, and new technologies for manipulation of gene expression in animals (i.e., RNA interference, transgenesis, etc.).” Genetic engineering of animals offers a way to increase the genetic variability available for selection as compared to conventional breeding which is limited in selection to naturally-occurring genetic variation in the general population of animals. Genetic engineering of animals has the potential to provide compelling benefits to transform public health, including improved foods, advances for human health, enhanced animal welfare and a reduced environmental impact according to a recent report by Gottlieb and Wheeler⁵.

Good stewardship will be required in the animal agriculture industry to build public confidence. The livestock industry and food value chain of the future will continue to rely on stewardship programs. The animal biotechnology industry has adopted stewardship guidance on GE animals to assist product developers in industry and academia in developing their own stewardship programs. Stakeholders and the public must have confidence that the animal biotechnology industry meets requirements for good animal welfare and many other aspects in research and development and post-approval phases that lead toward commercialization. Adherence to regulatory requirements, accreditations or other approvals by standard setting bodies, and adoption of comprehensive voluntary incentive-based programs all contribute to the production of safe and sustainable food using new technologies.

Increased investment in animal agricultural research will be required to reach the goals for 2050. Research discovery provides the new technologies, which then must be transferred successfully to the farm, the food chain and consumers, in order to reach the goals for 2050. Farm animal research is in crisis (Roberts et al., 2009⁶) and inadequate funding threatens vital agricultural and biomedical research with farm animals. An opportunity as noted by the National Academy of Sciences⁷ and the National Agricultural Biotechnology Council⁸ is that food and agriculture are full partners in human health. Therefore, funding and scientific expertise could be leveraged via cutting edge research programs, integrated across federal departments and through collaborative funding schemes toward solving food and agricultural problems. In fact, strategic federal investments in food and agricultural research will increase profitability to production animal agriculture, find solutions for difficult animal health, welfare and environmental challenges, discover new uses for U.S. animal agricultural products, address many issues of food safety, and allow the United States to lead the world in the development of our knowledge of human nutrition through animal protein products.

The future is bright! Animal agriculture will be an even larger part of global agricultural output based on sustainability, new technologies, good stewardship, and bolstered by research innovation and discovery. New technologies adopted with good stewardship will be responsible for healthy livestock production systems world-wide that solve hunger, health and the environmental issues. Increasing animal productivity and welfare (in the face of demand, the same land area, climate change, and water availability challenges) and simultaneously reducing the environmental impact of livestock agriculture will not be accomplished without using advances in biotechnology.

⁵ BIO, 2008. Genetically Engineered Animals and Public Health - Compelling Benefits for Healthcare, Nutrition, the Environment, and Animal Welfare, http://www.bio.org/foodag/animals/ge_animal_benefits.pdf

⁶ Roberts, R. M., G. W. Smith, F. W. Bazer, J. Cibelli, G. E. Seidel, Jr., D. E. Bauman, L. P. Reynolds, and J. J. Ireland. 2009. Farm animal research in crisis. *Science* 324:468.

⁷ National Research Council, National Academy of Sciences. 2004. Exploring a Vision: Integrating Knowledge for Food and Health. http://books.nap.edu/openbook.php?record_id=10936&page=R1

⁸ National Agricultural Biotechnology Council. 2009. Food and Agricultural Research: Innovation to Transform Human Health. http://nabc.cals.cornell.edu/pubs/AgFood_web.pdf

Panel: What Will Animal Agriculture Look Like in 2030?

Ray Stricklin
University of Maryland

Paper not provided. See power point section for slides.

Panel: What Will Animal Agriculture Look Like in 2030?

Looking Ahead to 2030

Adele Douglass
Humane Farm Animal Care

Paper not provided. See power point section for slides.

What Should Animal Agriculture Look Like: the Role of Government

Representative Rosa DeLauro
Chair of the House Agriculture-FDA Appropriations Subcommittee

Biographical information

Congresswoman Rosa DeLauro has worked a lifetime for the people of Connecticut . She was first elected to Congress from Connecticut 's Third District in 1990, and is currently serving her tenth term. Congresswoman DeLauro sits on the House Appropriations and Budget Committees. She serves as chairwoman of the Agriculture-FDA Appropriations Subcommittee and as a member of the Labor-Health and Human Services-Education and Financial Services Appropriations Subcommittees. In 1999, she was elected Assistant to the Democratic Leader by her colleagues, making her the second highest ranking Democratic woman in the House of Representatives. She was re-elected to this position in 2000. She has served as co-chair of the House Steering and Policy Committee since 2002.

Congresswoman DeLauro was born and raised in New Haven's Wooster Square. In 1998, 2000 and 2002, she was recognized as one of the House of Representative's top "Workhorses" by Washingtonian magazine, and was called a "hero for working families" by nationally syndicated columnist Tom Oliphant.

Congresswoman DeLauro has helped Connecticut families get ahead by making economic improvement a top priority. The first bill she introduced as a Member of Congress was a middle-class tax cut. More recently, she has fought for targeted tax cuts such as a \$500 per child tax credit, a tax cut for children ' s health care, and education tax cuts to give every Connecticut family the chance to send their kids to college. Congresswoman DeLauro has authored legislation that would guarantee men and women equal pay for equal work. From her seat on the Appropriations Committee, DeLauro has successfully secured millions in vital funds for Connecticut ' s defense industry. In addition, Congresswoman DeLauro has become a leader in the effort to protect and strengthen Social Security for today's seniors and future generations.

During her tenure in Congress, Congresswoman DeLauro has taken a special interest in health care issues, leading the fight for affordable, quality health care. She has worked aggressively with a bipartisan group of legislators to lower the rising costs of prescription drugs. As a result of her efforts, the U.S. House passed legislation allowing the importation of drugs from countries like Canada in the 108th Congress. A survivor of ovarian cancer, Congresswoman DeLauro has been a leading voice for increasing critical cancer research. Her work led to passage of "Johanna's Law" in the 109 th Congress – a law that will increase awareness of the gynecologic cancers. From her position on the Labor-Health and Human Services-Education Appropriations Subcommittee, Congresswoman DeLauro has fought to increase funding for breast and cervical cancer screening and research. Congresswoman DeLauro has also authored legislation to ensure longer hospital stays for women undergoing breast cancer surgery, that enjoys bipartisan support. She led an effort to enact national legislation to address the public health crisis of underage drinking in our country. In the 109th Congress, " The STOP (Sober Truth on Preventing) Underage Drinking Act" became law.

What Should Animal Agriculture Look Like in 2030?

Matt Sutton-Vermeulen
Unison Resource Company

What should animal agriculture look like in 2030?

As you know, I'm certainly not a journalist, so I don't have to pretend to be unbiased about what I'm going to say to this unique and important forum. In fact, I want to let you know that I do hold significant biases when it comes to the future of animal agriculture in this country.

I began my career as a hired hand in production agriculture and my work today continues to allow me to interact with meat, milk and egg producers of all shapes, and sizes across the globe. I'm fortunate to have had the privilege of working on farms and ranches --- birthing pigs, pulling calves, brooding chicks and turkey poults, gathering eggs, milking cows and caring for farm animals --- and when necessary, euthanizing them in an appropriate manner and occasionally dressing them out for human consumption. For me there is a significant difference between farm animals raised for food and those we allow to share our homes as pets. My parents taught me at an early age to respect the sacred trust animals gives us as their caretakers.

While I support everyone's right to purchase meat, milk and eggs raised "free range", natural, organic, or using heirloom practices that enable animal to exhibit their "natural behavior," I don't support these practices with my checkbook or debit card. My folks taught me that in America the marketplace allows people to make choices. I can tell you from personal experience, the "good old days" weren't as good for the farm animals or farmers, or even our pets, as many of today's "foodies" would like us to believe. Personal experience also tells me it's possible to humanely raise food animals in many different ways and that trade-offs exist in comparisons of all production systems.

Statistics show that over 8 billion people on the globe will be relying on animal agriculture to have sound character, a high level of competence and operate in a sustainable manner in 2030.

According to the *Long Look, Livestock's Long Shadow* from the Food and Agriculture Organization of the United Nations, growing populations and incomes, along with changing food preferences, are rapidly increasing demand for livestock products. Livestock products provide one-third of humanity's protein intake and a potential remedy for undernourishment.⁹

On pages 283 and 284 of the *Long Shadow* report, the authors "suggest four lines of action" that can be summarized in the following manner:

Replace current sub-optimal production with advanced production methods for efficiency gains.

1. Accept that intensification and industrialization of livestock production is the inevitable long-term outcome.
2. Adjust grassland-based production...landscape maintenance, biodiversity protection, clean water and eventually carbon sequestration.
3. Develop and implement effective policy frameworks.

⁹ Long Look, *Livestock's Long Shadow. Environmental Issues and Options* published by the Livestock, Environment and Development (LEAD) Initiative, Food and Agriculture Organization of the United Nations (FAO), 2006

It's ironic, isn't it, that in light of those suggested lines of action, many of the most efficient, intense and "carbon friendly" meat, milk and egg production systems currently in operation throughout the world are facing heavily financed, highly researched and professionally orchestrated political, legal and social attacks. Many of these attacks focus on the very practices that will enable people in 2030 to be able to afford to eat meat, milk and eggs.

It's frightening, actually, that when non-farmers today don't understand or support current agricultural production practices, how much greater that lack of understanding and support might be by 2030. This means those of us now involved in meat, milk and egg production must devote greater resources than ever to ensure the success of our families, communities and those who are counting on us to put food safe, affordable and nutritious food on their plates.

There must be procedures in place for farmers who produce meat, milk and eggs in 2030 to provide opportunities for non-farmers to understand how the animals are being raised and cared for. Those procedures must enable people to report their concerns in a prompt and confidential manner so the interests of the animals are met in a timely and professional manner. It will also enable farmers who find themselves in a difficult set of circumstances that are out of their control to reach out and get help from their colleagues in a confidential manner. I believe that we must create this type of an environment, to maintain the food security of our nation and the food security of all of our citizens.

I have the good fortune to be engaged with a group of farmers and agricultural leaders in one state to develop a Farm Animal Care system. This system is a proactive communication outreach from farmers to the citizens of their state demonstrating their commitment to provide appropriate care to their farm animals. We are using modern technology to help connect consumers with farmers' daily lives and the practices they use to produce meat, milk and eggs. At the same time, we are reinvigorating the community-based approach that rural communities often use when one of their neighbors needed a helping hand.

The Farm Animal Care system will provide three distinct functions:

1. Provide stakeholders with information – Visitors will have access to the most up-to-date information regarding farm animal care practices in their state. Video clips will provide personal insights and first-hand experiences of farmers caring for their animals. Additional resources will be available for those seeking more information.
2. Enable concerns to be reported – A 1-800 number and Internet submission system will be made available to anyone who wants to report a concern or get more information regarding farm animal care in their state. All submitted concerns will be evaluated, investigated and reported back to the person who lodged the concern in the first-place.
3. Serve as a confidential resource – Enable farmers to request assistance with farm animal care on their operation during difficult circumstances.

This Farm Animal Care system is modeled after the Farm Animal Care systems that have been operating successfully in Canada for over 15 years. We consider this to be a pilot project in hope that other states can take what we build and duplicate it with their farmers. It may not be the answer to all of the challenges we will face in 2030, but we believe it is a step in the right direction.

Statistics tell us that America's farmers are some of the most efficient and productive in the world. If we are truly going to be a part of the solution for the growing protein demands in 2030 we need to continue our drive for production efficiency at the same time we get back to the basics in our states and communities.

Panel: What Should Animal Agriculture Look Like in 2030?

Paul Shapiro
Humane Society of the United States

Paper not provided. See power point section for slides.

Panel: What Should Animal Agriculture Look Like in 2030?

Christine Bushway, Executive Director
Organic Trade Association

Paper not provided. See power point section for slides.

Panel: What Should Animal Agriculture Look Like in 2030?

Marie Belew Wheatley
American Humane Association

The American Humane Association is the oldest humane organization in the United States dedicated to protecting the welfare of both children and animals. Founded in 1877, the organization formed around the need to address the inhumane treatment of animals in transit and working animals. In 1879, American Humane began inspecting stockyards, rail cars and slaughterhouses in an effort to improve the welfare of farm animals.

Throughout our history, American Humane has held balanced, reasoned and moderate policies in support of animal welfare. We believe that people have the right to choose what they eat. Eliminating food choices is not our agenda. Our mission is to ensure that animals raised for food are treated humanely today, as well as 20 years from now.

American Humane created the first and original certification program in the United States to ensure the humane treatment of farm animals. American Humane® Certified provides independent verification that the care and handling of farm animals by a certified producer meets the science-based animal welfare standards of American Humane. Those standards, based on generally accepted animal husbandry guidelines, were developed in collaboration with animal science experts, veterinarians, farmers and ranchers. They are reviewed regularly by the American Humane Certified Scientific Advisory Committee to ensure that advances in technology and new methods of handling and best practices are incorporated.

Over the past two years, the American Humane Certified program has grown more than 1,000% with the certification of new producers in the United States and Canada, across all species. The exceptional growth of the program reflects increased retailer and consumer demands. It is the result of working with farmers and producers to develop new solutions to welfare problems; bringing new technology to the audit process resulting in increased productivity, reduced costs, transparency and accountability; providing humane training for handlers; and creating ever increasing support among consumers and retailers for humanely raised protein products.

From our perspective of 132 years, what should animal agriculture look like in 2030, at which time we will have more than 150 years of dedication to the improvement of animal welfare?

Most certainly, animal agriculture will be substantially different 20 years from now because the environment will be global, not focused on any one nation or continent. The projected increase in the world population by one-third to reach nine billion by 2050 will present new challenges over the next 20 years to find solutions to feed the world. The challenges will lie in crafting consistent global policies that address natural resources and energy, economic markets, climate changes, technology, sustainability, and agriculture. While United States agriculture will not be able to meet all of the demand for safe and sufficient food on its own, we will be a leader in the discussion and determination of public policies that will create solutions for people and animals.

From our perspective, there are challenges to create global understanding of the significance of animal welfare. The significance lies in the impact of animal welfare on animal health and food safety, international trade, the economic viability of agriculture, and consumer perception. We see signs that animal welfare is emerging as a significant aspect of world trade policy and a requirement to participate. Currently, the International Organization for Animal Welfare (OIE), the World Trade Organization (WTO), the United Nations' Food and Agriculture Organization (FAO), and the European Union (EU), as well as other nations, are developing animal welfare standards for a global market with the intent to gain universal acceptance in order that animal welfare be used as a criteria to trade, not as a barrier.

Animal agriculture in 2030 should be driven by food safety; a sufficient, dependable and affordable food supply; sustainability of resources; and positive animal welfare outcomes.

We will focus our dissertation on positive animal welfare outcomes. Given the astounding increase in the world population in the next 20 to 30 years and the pressure to feed people, we do not see intensive livestock production diminishing, but more likely increasing. We believe that efforts to measure only space and housing requirements for the welfare of each species of animals will give way to a balance of management, resources and the measurement of overall outcomes. We will rely heavily on evidence-based assurance that the space and housing requirements, as well as other enrichment elements, are founded on sound research of behavior, rather than emotional or anthropomorphic interpretations.

Certainly providing appropriate and adequate space, shelter, enrichment, food and water, and assuring good health will continue to be the foundation of proper animal husbandry. Additionally, we think that assuring appropriate resources – whether housing and enrichment, nutrition, improved technology to monitor welfare practices as well as animal health and well being, and more humane transportation equipment – is mandatory for good animal welfare in intensive production systems.

Advances in technology will allow improved continuous monitoring of animal health and well being. American Humane now employs 24/7 video monitoring of contact points between animals and humans on a limited and experimental basis. It is a valuable risk-management tool for producers, as well as providing continuously improved best practices through retraining opportunities when needed. Various elements such as vocalization to monitor stress in animals, and ammonia levels and air quality can also be measured. Online monitoring of core welfare and health standards will provide early warning of any issues impacting an animal. With new technology advances, we think every animal should be monitored for welfare, tracked and sourced for health issues, thereby providing transparency and accountability throughout the production and processing system. Humane education and handling should be an intricate part of any Quality Assurance/Quality Control (QAQC) system.

Equally important as appropriate resources to ensure good animal welfare is the management of those resources. Assuming the “duty of care” naturally involves taking on responsibility for delivery of good animal welfare outcomes. Today we find less than two percent of the population of our country is involved in agriculture. Even with the increased global demand for food production, it is anticipated that people in this country who will be employed in intensive livestock production will probably not be reared in rural environments. In 2030, enrollment in humane handling training should be required to be employed in animal production. Varying levels of training on standards and best practices for handlers and managers should be available on-site and online through food producers. It should be part of 4-H and Future Farmers of America’s vocational and continuing education. The culture in all producer production and processing operations, large and small, should be zero tolerance for animal maltreatment or neglect. There should be no market for producers or processors who have not met animal welfare standards, as mandated by world trade and verified by third-party audits. Veterinarians and technicians, whose training includes animal welfare study, should be involved in educating and integrating good animal welfare practices in every operation.

Farm animal welfare should be regularly monitored online with input from veterinarians embedded in producer and processing sites, as well as with video monitoring. Independent third-party auditors should audit to the mandated global standards for animal welfare. Given the size of the industry, on-site audit visits would be random and statistically accurate in sample size but less frequent, but online monitoring should be frequent. The measurement of welfare in every operation selling into the global market should be a balanced outcome based. Every animal should be source-tracked and any evidence of maltreatment discovered in the slaughter process should result in loss of sales and penalties.

Over the next 20 years the role of American Humane, and other NGOs, will be to help draft public policy that incorporates animal welfare as part of the criteria to buy or sell food globally. The issue of animal welfare is complex, involving ethics, philosophy, religion, law, economics and differing values and standards. But the time has come to address the significance of animal welfare in our food choices. People in the United States, the European Union, and many other countries have expressed strong support for sound animal welfare in opinion polls and through legislation, referenda, and regulations.

American Humane and others will continue to review, credential, and provide science-based standards with which to measure animal welfare outcomes. We, as a group, will commission and provide oversight of appropriate research that will measure outcomes of new methods of care, new equipment, and new technology in order to have evidence-based assurance that recommended best practices are delivering the desired animal welfare outcomes.

Animal agriculture should be focused on food safety, sustainability, animal welfare, and economically feasible production that will feed the world in 2030.

Panel: What Should Animal Agriculture Look Like in 2030?

Jennifer L. Greiner

Paper not provided. See power point section for slides.

APPENDIX A

Program and Speaker Contact Information

Morning Theme: What Will Animal Agriculture Look Like in 2030?

Morning Moderator:

Richard Reynnells, National Program Leader
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8:00 - 8:15 a.m.

Welcome

Kathleen Merrigan, Deputy Secretary
US Department of Agriculture
Washington, DC

8:15 – 8:30 a.m.

History of the Future Trends in Animal Agriculture

Ken Klippen
Executive Director of Government Relations and Animal Welfare
Sparboe Farms
T#: 610.415.1055
C#: 484/744-3851

8:30 – 9:00 a.m.

What Will Animal Agriculture Look Like: the Role of Government

Representative David Scott
Chairman of the House Livestock, Dairy, and Poultry Subcommittee
Washington, DC

9:00 – 9:30 a.m.

Alternative Viewpoints on Food Animal Production and Processing

Ron DeHaven, DVM MBA
CEO/ Executive Vice President
American Veterinary Medical Association
Office of the Executive Vice President
1931 N Meacham Rd, Suite 100
Schaumburg, IL 60173
T#: 847-925-8070
F#: 847-625-1329
email: RDeHaven@avma.org

9:30 – 10:00 a.m.

Break

10:00 – 11:30 a.m. **Panel: What Will Animal Agriculture Look Like in 2030?**

1. Andrew Gunther, Program Director
Animal Welfare Approved
Animal Welfare Institute
900 Pennsylvania Avenue, S.E.
Washington, DC 20003
T#: 202.337.2332
F#: 202.446.2131
email: andrew@animalwelfareapproved.org
www.awionline.org
www.compassionindex.org
2. New Technologies in Animal Agriculture—Compelling Benefits for
Nutrition, Public Health, Animal Welfare and the Environment
Barbara P. Glenn, Ph. D.
Managing Director, Animal Biotechnology
Biotechnology Industry Organization
1201 Maryland Ave, SW, Suite 900
Washington, DC 20024
T#: 202 962 9200
D#: 202 962 6697
C#: 202 345 3679
F#: 202 962 9201
email:bglenn@bio.org
www.bio.org
3. W. Ray Stricklin
Animal and Avian Sciences Department
University of Maryland
College Park, MD 29742-2311
T#: 301.405.7044
F#: 301.314.9146
email:wrstrick@umd.edu
4. Looking Ahead to 2030
Adele Douglass, Executive Director
Humane Farm Animal Care
P.O. Box 727
Herndon, Virginia 20172
T#: 703.435-3883
F#: 703.435.3981
email: adele@certifiedhumane.org

11:30 a.m. - 1:00 p.m. Lunch

Afternoon Theme: What Should Animal Agriculture Look Like in 2030?

Afternoon Moderator: David R. Brubaker
Agri-Business Consultant
145 South Spruce Street
Lititz, PA 17543
T#: 717.627.0410
F#: 717.627.1847
email: PennsylvaniaB@aol.com

1:00 – 1:30 p.m. **What Should Animal Agriculture Look Like: the Role of Government**
Rep Rosa DeLauro, Chair of the House Agriculture Appropriations
Subcommittee
Washington, DC

1:30 - 2:00 p.m. **What Should Animal Agriculture Look Like in 2030?**
Matt Sutton-Vermeulen
Unison Resource Company
8711 Northpark Court
Johnston, IA 50131
T#: 515-343-5149
F#: 515-251-8909
M#: 515-371-7914
email: matt@unisonresource.com
www.unisonresource.com

2:00 – 2:30 p.m. Break

2:30 – 4:00 p.m. **Panel: What Should Animal Agriculture Look Like in 2030?**

1. Paul Shapiro, Senior Director
HSUS Factory Farming Campaign
Humane Society of the United States
2100 L Street NW
Washington, DC 20037
T#: 301.721.6432
F#: 301.721.6414
email: pshapiro@hsus.org
2. Christine Bushway, Executive Director
Organic Trade Association
PO Box 547, Greenfield MA 01302
Shipping: 60 Wells Street, Greenfield MA 01301
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F#: 413.774.6432
email: cbushway@ota.com
3. Marie Wheatley, CEO
American Humane
63 Inverness Drive East
Englewood, CO 80112
T#: 303.925.9485 direct
F#: 303.792.5333
email: mariew@americanhumane.org
4. Jennifer L. Greiner, DVM
Director of Science and Technology
National Pork Producers Council
122 C Street, NW
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APPENDIX B

2008 List of Co-Coordiators

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USDA NIFA, PAS
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APPENDIX C

Power Point Presentations

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History of the Future Trends in Animal Agriculture

Ken Klippen
Executive Director of Government Relations and Animal Welfare
Sparboe Farms

Future Trends in Animal Agriculture
December 2, 2009
Washington, DC

The History of FTAA

Ken Klippen

Executive Director of Government Relations and Animal Welfare
Sparboe Egg Farms
Producing Eggs in Minnesota, Iowa and Colorado

Thank You!

- Office of the Secretary, USDA
- FTAA Organizers
- Speakers Today
- You

In the Future

By 2050 the world will need 70% more food (compared to what we produce today) in order to feed an expected population of 9.1 billion.

FAO, 9/23/09

This projection serves as a reminder that in order to feed the growing human race, agricultural systems and new technologies must be investigated.

-

Addressing the Future

Future Trends in Animal Agriculture

Comprised of government, universities, farm groups, and animal welfare organizations.

Mission

To foster and enhance balanced and enlightened public dialogue on topics related to the nature and future of animal agriculture

Goals

To facilitate genuine collaboration and the ability of farmers to produce food for society, while maintaining animal welfare.

To exchange views and perspectives in analyzing animal production systems consistent with science and consumer concerns.

A Look At FTAA Over the Years

- Initiated 1988
Coalition of government, universities, farm groups, farmers and animal welfare organizations
- Annual Meetings up until 1996
- Resumed conferences in 2002
- This year's conference is the 15th year of *Future Trends in Animal Agriculture*

How Well Have We Done?

Let's look at the past FTAA conference themes and some of the dialogue from those conferences.

FTAA September 17, 2008

- “Complementary Relationships in Animal Agriculture”
- 1) Regulatory Roles That Enhance Food Safety
- 2) European Regulations Related to Animal Welfare
- 3) Pro's & Con's of Using Legislation to Advance Welfare
- 4) Slaughter Facility Management
- 5) Treatment of Sick and Injured Animals in Transport
- 6) Animal Care in the Dairy Industry
- 7) Responsible Antibiotic Use

Notes from 2008 FTAA

- There is no one production system that can provide all the physical needs and allow all inherent behaviors.
- American Humane Association “it was not the job of the animal welfare organizations to change the way people choose to eat.”
- Several called for the use of video cameras in production facilities for transparency to the public.
- The Coalition to Keep Antibiotics Working presented a report (they represent a number of organizations totaling 9 million members) citing government statistics showing 1 in 5 cases of human Salmonella infection are resistant to drugs. They called for more government data collection on the use of sub-therapeutic feeding of antibiotics.

FTAA September 20, 2006

- “Addressing International Trade Complexities of Animal Welfare.”
- 1) Current Issues in International Trade
- 2) Canadian Experience in Cooperation with Diverse Groups
- 3) Animal Welfare as a Trade Issue
- 4) Disease Transfer Potential: Impact on Trade and Practices
- 5) Economics of Moving Animal Production Outside of US
- 6) How Should US Address Trade and Animal Welfare

Notes from 2006 FTAA

- 1) Canada has recommended codes of practice – living documents, easy to update. Forming foundation of new on-farm animal welfare verification programs.
- 2) Animal Welfare as a Trade Issue has lead to OIE developing mission statement on welfare, establishing working group, convened several ad hoc groups to address specific issues within Welfare. Differences in regulations can lead to trade barriers
- 3) May 2005 OIE developed 4 guidelines
 - (1) Transportation of animals by sea
 - (2) Transportation of animals by land
 - (3) Guidelines on slaughter
 - (4) Guidelines on killing for disease control

FTAA September 22, 2004

- “Local and Global Considerations in Animal Agriculture.”
- 1) Trade and Growth of Animal Agriculture in the World
- 2) Can Small and Medium Size Farms Survive?
- 3) How to Communicate with the Outside World
- 4) Views on Humane Treatment of Food Animals
- 5) Bridging Differences Between Europe and US

Notes from 2004 FTAA

- 1) Demand for animal protein in developing world will shift practices toward intensive production systems. FAO reports surge in exports from developed countries from 12.4 million tons in 2003 to over 20 million tons (165% increase)
- 2) Consumers want safe food, produced in environmentally safe and animal welfare friendly fashion
- 3) Policy should increase public awareness for environmental and animal welfare issues related to intensive production practices
- 4) Energy, food security, social costs all important for the future

FTAA September 17, 2003

- “Sharing Costs of Changes in Food Animal Production: Producers, Consumers, Society and the Environment”
- 1) Opening Comments by USDA Secretary Ann Veneman
- 2) Vision for the Future
- 3) Balanced Decision-Making
- 4) Decision-Making in the Food Chain
- 5) Sustainable, Adaptive Food Production Systems
- 6) Changes in Agriculture and Community Controversy
- 7) Animal Welfare and the Environment

Notes from 2003 FTAA

- 1) Need for increased public accountability and public discussion
- 2) Modern farms can raise chickens on only 75% as much feed and 10% as much farmland as backyard farms
- 3) Humane practices need not be cost prohibitive and those of greatest priority are not necessarily the most expensive
- 4) Rather than science focusing on productivity, science should optimize end points with goals to develop food that takes into consideration animals, citizens, and the environment.
- 5) Sustainable agriculture can be viewed as a balanced ecosystem.

2002 Standards for Food Animal Production: Status, Well-Being, and Social Responsibility

- **Dairy**, Robert Byrne, Vice President of Regulatory Affairs, National Milk Producers Federation
- **Beef**, Gary Weber, Executive Director, Regulatory Affairs, National Cattlemen’s Beef Association
- **Pork**, Paul Sundberg, Assistant Vice President, Veterinary Issues, National Pork Board
- **Broilers**, Steve Pretanik, Director of Science and Technology, National Chicken Council
- **Egg Layers**, Ken Klippen, Vice President and Executive Director of Government Relations, United Egg Producers
- **Turkey**, David Meeker, Vice President, Scientific and Regulatory Affairs, National Turkey Federation
- **Sheep**, Peter Orwick, Executive Director, American Sheep Industry Association
- **Veal**, Paul Slayton, Executive Director, American Veal Association

Are We Seeing Animal Production Systems Being Analyzed Consistent with Science and Consumer Concerns?

- **EU - At the 2934th Agriculture and Fisheries Council meeting in Brussels on 23 March 2009, support was given for a Universal Declaration on Animal Welfare (UDAW).**

2934th Agriculture and Fisheries Council meeting in Brussels

At the meeting, The Council of the European Union:

- 1) Deems it important to achieve world-wide acceptance of animal welfare as an issue of common concern and importance
- 2) Encourages the Commission to continue, as announced in its Action Plan on the Protection and Welfare of Animals, "to support and initiate further international initiatives to raise awareness and create a greater consensus on animal welfare, including engaging with Developing Countries to explore trade opportunities based on welfare friendly production systems", and
- 3) Invites the Member States and the Commission, within their respective competencies, to support, in principle, the Universal Declaration on Animal Welfare (UDAW) initiative in the relevant international fora."

What's Happened in the US?

- In 2002, voters in Florida became the nation's first in a citizen referendum to enact a ban on swine gestation stalls after the Humane Society of the US (HSUS) initiated the campaign two years earlier. HSUS gathered more than 600,000 signatures for that ballot initiative.

In California

- On November 4, 2008, Proposition 2 was a landslide victory (63%) for HSUS in California. By 2015 the state's 20 million laying hens will no longer exist to produce the egg needs for California residents. Producers who do not comply will face misdemeanor penalties.

What Else?

Michigan

House Bill 1527 "Animal Industry Act" (became law when Governor Jennifer Granholm signed it 10/12/09)

Egg-laying hens: fully extending its wings without touching the side of an enclosure or other egg-laying hens and having access to at least 1.0 square feet of usable floor space per hen

Pig during pregnancy and veal calves: not tether or confine in a manner that prevents it from lying down, standing up, fully extending its limbs, turning around freely

Ohio Voters Support Issue 2 November 3, 2009

By a clear majority, Ohio voters supported the constitutional amendment to create a state Livestock Care Standards Board.

The 13-member board, comprised mostly of farmers, veterinarians and agricultural industry leaders, will create and implement livestock care guidelines.

State Laws

- Michigan is the seventh state to ban gestation crates, the fifth to ban veal crates, and the second to ban battery cages.
- Arizona, California and Florida have passed similar measures through ballot initiatives.
- Maine, Colorado and Oregon Maine have passed related laws in their state legislatures.

Policy Developed within States

National Association of State Departments of Agriculture Policy Statement 1.6

1. The industry should address such concerns including the increasing need for both consumer and industry education about the welfare of animals and their value to the nation, new techniques to assure and improve the welfare of animals, national voluntary standards for animal husbandry practices, mechanisms to assure fair and proper enforcement of animal welfare regulations, government funding for this increased regulatory burden, and stronger laws and regulations to end threats, harassment, destruction and disruptive actions by animal rights activists.
2. Animal welfare regulations and guidelines should be developed and promoted by the appropriate industry segment.
3. These regulations should include guidelines about animals used in biomedical research; standards of practice for all livestock species, both for production and marketing including transportation; the handling of downer animals; and animal care including a protocol for farmers and ranchers to use to evaluate the welfare of animals on their farms and ranches.

Addressing Perceptions

The red meat industry faces the challenge of reintroducing itself to consumers in such a way as to prove itself a source of innovation and technology — and to do that properly, many meat executives will have to change their approach, said Charlie Arnot, founder of CMA Inc. in Kansas City, MO. When red meat processors defend their industry to consumers and the media by pointing to the science and to the laws and regulations, they are doing little to nothing to change negative perceptions, Arnot noted. "Science is not sufficient," he said.

Meatingplace.com

Looking into the Future

- This is the basis for Future Trends in Animal Agriculture
- Listen, learn, and think about what is needed and how to get there.

Welcome to FTAA

We're here to exchange views and perspectives, and to analyze animal production systems consistent with science and consumer concerns.

Alternative Viewpoints on Food Animal Production and Processing

Ron DeHaven
American Veterinary Medical Association

Viewpoints on Food Animal Production

Future Trends in Animal Agriculture

December 2, 2009



W. Ron DeHaven, DVM, MBA
Chief Executive Officer
American Veterinary Medical Association



It's nice to "come home"
(Well, for a visit anyway.)

- 28 years with the Animal & Plant Health Inspection Service
- 5 years in the Jamie L. Whitten Building



Animal Agriculture

The Times They Are A-Changin'

- Bob Dylan, 1964



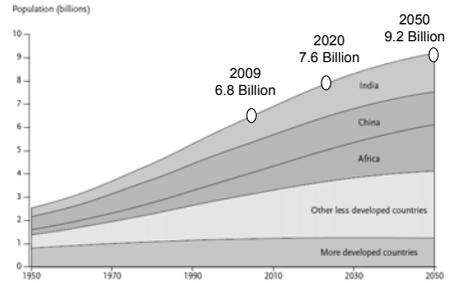
Outline of Presentation

- Lay of the Land
- Global Challenges to Animal Agriculture
- Food Animal Welfare in the U.S.
- One Health

The "Lay of the Land"



Population Growth



Source: UN Population Division, *World Population Prospects: The 2006 Revision, Medium Variant* (2007)
 *Steinfeld. The livestock revolution—a global veterinary mission

In the next 40 years the global population will grow by 2.4 billion

Growth will be equivalent to adding the size of Paris (2.3 million) every 2 weeks for the next 40 years

Population will be predominantly urban

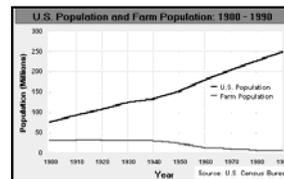
High food prices have pushed more than 1 billion people into hunger

Josette Sheeran
 Executive Director U.N. World Food Program, August, 2009



A changing population...

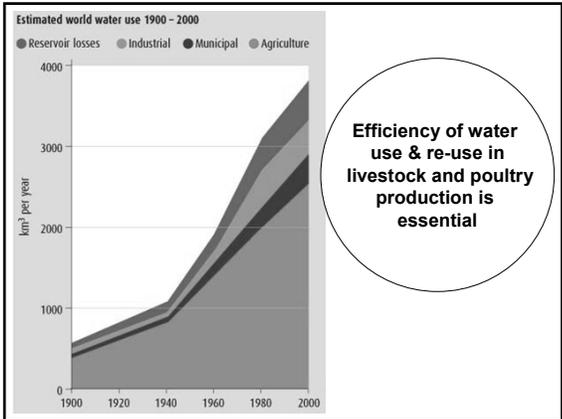
- Rural → Urban



Urbanization will have the most consequential effect on the structure of society in the 21st Century

trade patterns, food supplies, patterns of disease transmission & environmental health

There are estimates that 900 million people will live in cities in China by 2020



Global Challenges in Animal Agriculture

In the next 40 years it is estimated the world will need an increase in food production of 100%

Simmons, J. Economics and Consumers Choice. Technology's role in the 21st Century

FAO estimates:
 20 % from added farm land
 10 % from increased farming intensity
70% from new and existing technologies

Innovation will be key!

China has 20% of the world's population but Only 7% of the arable land.

Increased efficiency of production is critical

Meat & Milk Consumption Estimates

Meat consumption per person per year	2030
Developing	37 kg/yr
Industrialized	increase
Milk consumption per person per year	
Developing	increase
Industrialized world	decrease

The consequence is an intensifying wildlife, grain production, livestock, human interface

UN Population Division, World Population Prospects: The 2006 Revision, Medium Variant (2007)
 *Steinfeld. The livestock revolution—a global veterinary mission Vet. Parasit. 125, 19 – 41, 2005

Production Efficiency

Yields of milk in different systems
 2007 data, United States

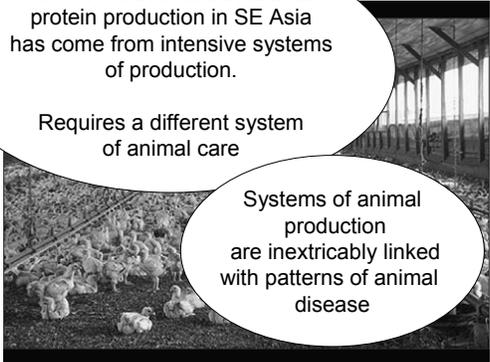
	Conventional (Intensive)	Grazing	Organic
Per cow/yr	22,182 lbs	15,903 lbs	16,369 lbs

Goal should be fewer cows but higher yields less feed, less water use, less waste

80% of the increase in animal protein production in SE Asia has come from intensive systems of production.

Requires a different system of animal care

Systems of animal production are inextricably linked with patterns of animal disease



Aquaculture: An opportunity

"Some studies have predicted that by 2050 half of the animal protein consumed by people will come from aquaculture."

- Dr. Barry O'Neil, President of the OIE
May 2009



Animal Agriculture: Collision Course

Increasing Demand
vs.
Societal Issues



Societal Issues

Food Production

Food safety

Infectious disease
Lost productivity

Population growth
Urbanization

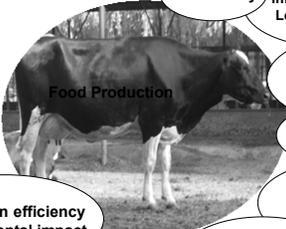
Antibiotic resistance

Animal Welfare

Production efficiency
Environmental impact

Genetic Manipulation

Water resources
Climate change



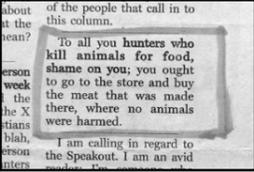
Food Animal Welfare in the U.S.

Challenges with the Public

of the people that call in to this column.

To all you hunters who kill animals for food, shame on you; you ought to go to the store and buy the meat that was made there, where no animals were harmed.

I am calling in regard to the Speakout. I am an avid




Public's Interest

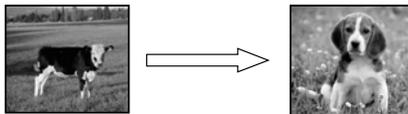
"Back-to-nature" combined with distrust of big business creates:

- Skepticism
- Emergence of activist organizations and networks
- Greater expectations for those involved in production of animal-related products
- Changes in public policy
 - Voluntary programs
 - Legislation and Regulation

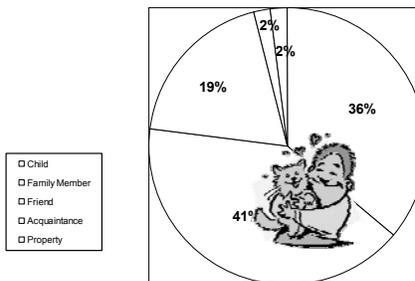


The Public's Perception of Animals

Animals: Source of food/fiber → Companions
 Public vision of animals reflects the companion animal, i.e., as family member or friend



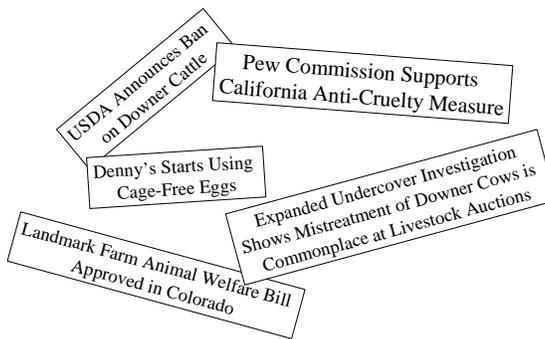
Relationship with Pets



Based on current pet owners: n=1927

GAP

HSUS Press Releases



HSUS

3 R's of "Humane Eating"

- **Reduce**
 - Cut back on animal consumption by 10%
- **Refine**
 - Choose cage-free animal products instead of conventional factory farm products
- **Replace**
 - Simply choose vegetarian options

New York Times Editorials



"We are disgusted by the conventional meat industry in this country, which raises animals – especially chicken and pigs – in inhumane confinement systems that cause significant environmental damage. There is every reason to change the way meat is produced, to make it more ethical, more humane."

– April 23, 2008

"In short, animal husbandry has been turned into animal abuse."

– May 31, 2008

Pew Commission Report

"The Commission recommends the phase-out, within ten years, of all intensive confinement systems that restrict natural movement and normal behaviors, including swine gestation crates, restrictive farrowing crates, ...battery cages, and the tethering or individual housing of calves for the production of white veal."



Can Science Sort Out Our Differences?

- Our dream...all animal welfare decisions are science-based
 - We want to look at inputs and outputs and arrive at a scientific solution
 - Biological function—is homeostasis maintained?
 - Health—absence/presence of disease/injury
 - Behavioral/social function
 - Adaptation
 - Emotional states (e.g., distress, suffering)
 - Cognition/awareness
 - Choices
 - We know this is the best way to assure that the welfare of the animal is protected
- But...most often there are trade-offs and we end up with a mix of positives and negatives



Science as a Solution

- The reality:
 - Animal welfare decisions are social decisions
 - Integration of culture, ethics, and science
 - Science isn't "black-and-white" or "value-free"
 - Science can be used to help resolve disputes (sometimes!)
 - Science may not exist, may be used selectively, or be ignored
 - Science is used by both sides in policy debates
 - If societal perception is that something is 'wrong' then science is unlikely to change that perception
- Science **can** determine what type or level of risk exists
- Science **cannot** determine what type or level of risk is acceptable (this is a social question)

Science as a Solution

- Must consider both physical and mental contributors to animal welfare
- Important factors include
 - Proper housing, including enrichment
 - Good management
 - Adequate nutrition
 - Disease and injury control
 - Handling/restraint
 - Euthanasia
- Must recognize that components of animal care systems do not exist in a vacuum.
 - Altering one component affects the entire system
 - Can have unintended effects on the welfare of the animal.

Personal Perspectives

Animal welfare policies/positions must be:

- **Science-based**
 - Physiology/Biochemistry
 - Production
 - Behavior
 - Health
- **Practical**
 - Positions that are not economically implementable will not improve animal welfare!
- **Socially acceptable**
 - To an **educated** public
- **Proactive!**

Personal Perspectives on Animal Welfare (con't)

Consider the possible
"unintended consequences"



The Realities of Today

One Health

"The Convergence"



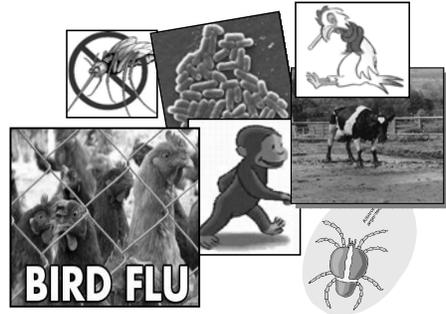
- 80% of animal pathogens are multi-host
- 60% of human pathogens are zoonotic
- 75% of emerging pathogens are zoonotic

One Health

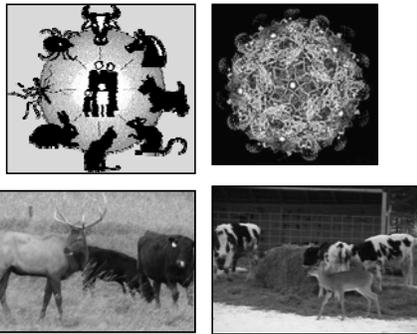
The incubation period for most infectious diseases is now longer than the time it takes to transport them across the globe.



Recent Animal Health Emergencies



Challenges



Influenza A H₁N₁ 2009 "Swine Flu"



Working Together



Panel: What Will Animal Agriculture Look Like in 2030?

Andrew Gunther
Animal Welfare Institute



Andrew Gunther
Program Director
Animal Welfare Approved
A Program of the Animal Welfare Institute

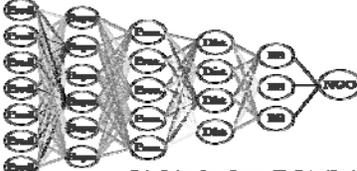
FUTURE TRENDS IN ANIMAL AGRICULTURE

DECEMBER 2, 2009

Summary

- ▣ Where we came from
 - 'Tradition'
- ▣ Advancement
 - Science
 - Production
 - Progress?
- ▣ Where we are today
 - Environment
 - Human Health
 - Welfare

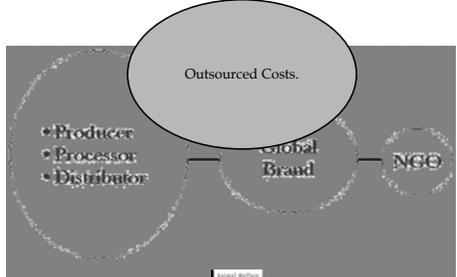
Agrarian Model



Prod. • Packager, Prod. • Processor, Wh. • Regional Distrib.



Industrial Model



Outsourced Costs.

• Producer
• Processor
• Distributor

Global Brand

NGO



Tradition

- ❑ Human to animal interaction dates back thousands of years
- ❑ Very little change until recent years
- ❑ Pastured production
- ❑ Greater human/animal interaction
- ❑ Yields generally low
- ❑ Still in operation in 'less developed' areas of the world



Advancement v1

- ❑ Animal production as a science
- ❑ The production push
- ❑ Yield is everything
- ❑ Cost per unit production
- ❑ Genetic improvements
 - ❑ Without always understanding the implications
 - ❑ For example the so called halothane gene in pigs



Progress?

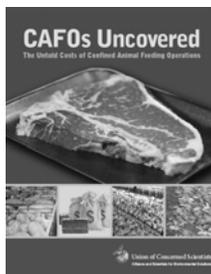


Advancement v2

- ❑ A greater awareness of animal welfare - and welfare violations.
- ❑ The Brambell Report in 1965
 - ❑ the first time significant factors affecting farm animal welfare were cited.
- ❑ An explosion of understanding.
- ❑ Ability to link welfare with other factors.
- ❑ True understanding of costs
 - ❑ Not just the cost per unit output
 - ❑ Indirect costs – welfare, healthcare, the environment, social.



Scientists taking a wider view



Links between farming and health

- ❑ E Coli 157
- ❑ Salmonella Newport
- ❑ MRSA
- ❑ Antimicrobial resistance.
- ❑ Dust and allergens.



Without effective action, treatments for common infections "will become increasingly limited and expensive – and, in some cases, nonexistent."
 Source: www.cdc.gov/drugresistance/actionplan/



Food Borne Illnesses in U.S.

- ❑ >75 million cases yearly
- ❑ 325,000 require hospital care
- ❑ 5,000 deaths yearly
- ❑ 1/3 are from tainted meat

Source: cdc.gov/ncidod/d/d/volnub/mead.htm

Better for you?

- ❑ **Pasture fed beef versus grain fed beef**
- ❑ **Work on omega 3 fatty acids**
 - ❑ Double the amount of these 'healthy' fatty acids in steers on pasture versus steers fed grain
- ❑ **Pasture raised beef and lamb versus feedlot animals**
- ❑ **Work on E Coli 0157**
 - ❑ No E coli in the pasture raised animals

Omega 3 refs: French et al., 2000; Duckett et al., 1993; Marmer et al, 1984; Wood & Enser 1997.

E. Coli refs: Russell et al., 2000; Bailey et al., 2003

Science used for welfare

- ❑ Science and investment in research has grown significantly.
- ❑ Global sharing and government policy has made research available.
- ❑ A significant amount of work has been published since 2000.
- ❑ Pain responses in farm animals
- ❑ Sentience in poultry
- ❑ And more.....



Mouth wide open vocalization with kicking in a castrated lamb. Note the concern shown by the ewe.



Better for the Animal

- ❑ **Rumen health** Feedlot bloat occurs during the finishing phase of cattle feeding when cattle receive a high-concentrate, low-roughage diet. Another term to describe the condition is grain bloat. The rumen contents are viscous and frothy, which impairs the normal eructation mechanism and impede release of gas from the rumen.
 - ❑ Bartley et al. (1) refer to feedlot cattle probably existing in a quasi-bloat state most of the time
- ❑ **Increased Liver lesions**
- ❑ **Behavioral needs met by access to shade.** Cattle have an upper critical temperature (UCT) approximately 20 degrees F. lower than humans UCT. When humans are uncomfortable at 80 degrees F and feel hot at 90 F, cattle may be close to death. Dee Griffin DVM,
- ❑ **Natural growth curve decreased pressure on joints and organs.**
- ❑ **Respiratory diseases** Dust and poor air quality



The manure mountain

- ❑ In Texas alone 7.5 million head of cattle in feedlots consume more than 7 million metric tons of feed containing more than 150,000 metric tons of nitrogen and 25,000 metric tons of phosphorous.

It would take 8,000 hectares of corn silage (or a similar crop) to absorb the manure from a feedlot with 50,000 head of cattle (Conner et al. 1999).

- ❑ Nationwide, about 130 times more animal waste is produced than human waste – roughly 5 tons for every U.S. citizen



Source: GAO Waste Management practices report

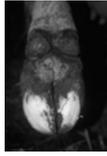
Better for the environment

- ❑ Lower stocking densities are known to facilitate higher welfare
- ❑ Lower stocking densities decrease environmental pollution.
- ❑ Pasture raised animals have a lower carbon footprint and lower pollution risks



Just Makes Sense

- ❑ High protien diets can:
- ❑ Increase yields
- ❑ It is also linked to:
- ❑ Chronic foot problems
- ❑ Significantly increased GHGs
- ❑ An increased risk of e coli production in an unbalanced Rumen.
- ❑ Excessive manure.
- ❑ Why are we blindly following the recent past failures?



FAWC October 2009

- ❑ The quality of an animal's life should be defined by an independent body.
- ❑ Marketing claims to the higher standard, corresponding to a good life, ought to be verified independently
- ❑ Recognition of customer preferences for 'welfare-friendly' products ought to result in uniform standards being applied to all livestock products on sale.
- ❑ Clear and informative labelling that reflects the welfare characteristics of food products will ensure consumers are buying the kind of products they prefer.



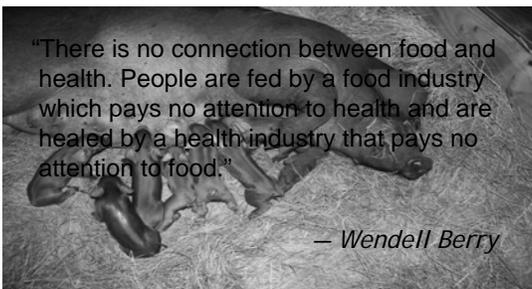
FAWC October 2009 cont.

- ❑ Welfare ought to be monitored regularly over an animal's life on the farm, during transport, at animal gatherings and at the abattoir, including the manner of death.
- ❑ Welfare surveillance ought to be based on valid measures that have been proven to be reliable and feasible to measure.
- ❑ Welfare assessment should record both the positive and negative experiences of farm animals.
- ❑ It is very important that welfare surveillance is audited independently and the findings are published.



"There is no connection between food and health. People are fed by a food industry which pays no attention to health and are healed by a health industry that pays no attention to food."

— Wendell Berry



Panel: What Will Animal Agriculture Look Like in 2030?

New Technologies in Animal Agriculture -- Compelling Benefits for Nutrition, Public Health, Animal Welfare and the Environment

Barb Glenn, Ph.D.
Biotechnology Industry Organization



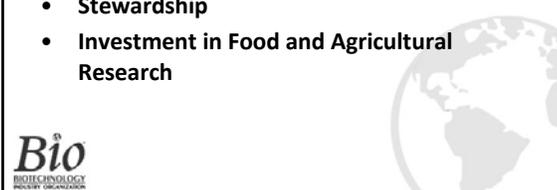
**New Technologies in Animal Agriculture –
Compelling Benefits for
Nutrition, Public Health, Animal
Welfare and the Environment**

Barb Glenn, Ph.D.
Biotechnology Industry Organization
Future Trends in Animal Agriculture
December 2, 2009



**What Will Animal Agriculture
Look Like in 2030?**
-Meeting Global Consumer and Animal Needs

- **New Technologies**
- **Genetic Improvement of Livestock**
- **Stewardship**
- **Investment in Food and Agricultural Research**



21st Century Challenges

- **Increasing Population**
 - 9 billion by 2050
 - At present, nearly 1 billion malnourished
- **Improved Nutrition in China and India**
 - Double food needs
- **Environmental issues**
 - Aquifers being depleted
 - Livestock impact
- **Global meat demand is projected to double by 2050**



Technology is Crucial

The United Nations predicts world population will exceed 9 billion by mid-century and has called for a **100 percent increase** in world food production by 2050.

World Population Prospects: The 2006 Revision. 2007. United Nations Population Division, New York.

Technology is Crucial

70 percent of the world's additional food needs can be **produced only with new and existing** agricultural technologies.

-United Nations FAO, 2002

New Technologies: Essential Tools

- Innovation will provide solutions
- Necessary for sustainably meeting the global challenges
 - Hunger, health, bioenergy, fiber
 - Animal welfare, producer needs
- Animal, plant and microbial biotechnologies

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Genetic Improvement of Livestock

- Primary driver of sustainable animal agriculture in the future
- Traditional breeding, sharing genetics between parents
- Use assisted reproductive technologies
- Genomics
- Technology adopters



25 Years of Conventional Improvement (photo by PIC)

Technology is Crucial

At least 20% of existing livestock breeds risk extinction, with insufficient data on an additional 30%.

-United Nations FAO, 2007

Omega/Skim Dairy Cow

- What's in her DNA?

*Fast Fact

Consumers lack 1/3 of the recommended intake of Omega 3



Marge - A dairy cow in New Zealand that produces naturally skim milk and high levels of Omega-3 oils.

Animal Biotechnology: An Essential Tool

- Cloning and genetic engineering – a continuum
- Enable and enhance precision genomics
- GE increases genetic variability available for selection

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The Promise of GE Traits in Livestock

- Animal welfare - Disease resistance
- Environment –
 - Efficiency of production
 - Reduced nutrient excretion
- Improving the quality foods
- Advancing human health

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PROMOTING ORGANIZATION

Animal Biotechnology: Animal Well Being and Care are Top Priorities

- **Healthy animals produce healthy foods.**
- Science-based animal husbandry practices
- Meeting science-based regulatory requirements
- Using guidelines of good stewardship principles that promote animal care and well being.

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Good Stewardship Required

- Builds public confidence
- “BIO Guidance for GE Animal Stewardship”
 - Animal welfare is a top priority
 - Regulatory requirements
 - Third party accreditation
 - International guidelines
- Voluntary incentive –based programs
- Certification programs

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Investment in Food and Agricultural Research

- Low levels of public funding
- Strategic investment needed
 - Nutrition, food safety, and health
 - Animal health and welfare issues
 - Environmental issues
 - New technologies- new ag products- innovation
- Enhance competitiveness of U.S. animal agriculture

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Investment in Animal Agricultural Research

- “Farm animal research is in crisis”
- Threatens vital agricultural and biomedical research with ag animals

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What Will Animal Agriculture Look Like in 2030?

- **Meeting global consumer and animal needs:** Hunger, health, animal welfare, and environment
- Based on adoption of new technologies, genetic improvement, good stewardship and increased research discovery and innovation
- **Will not be accomplished without using advances in biotechnology**

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Connecting to BIO, Our Industry

- BIO Food and Ag
– <http://bio.org/foodag/>
- GE Animal Resource Center-
<http://bio.org/foodag/>
- Animal Cloning- www.cloneinfo.org
- GE Crops – www.whybiotech.com
- Dr. Barb Glenn, Phone: 202 962 6697, bglenn@bio.org



Panel: What Will Animal Agriculture Look Like in 2030?

Ray Stricklin
University of Maryland

What Will Animal Agriculture Look Like in 2030?

W. Ray Stricklin
Department of Animal & Avian Sciences
University of Maryland
College Park

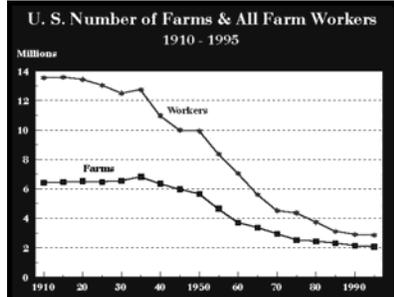
“If we could first know where we are, and
with where we are tending,
we could better judge what to do
and how to do it.”

Abraham Lincoln (1858)

Animal Agriculture

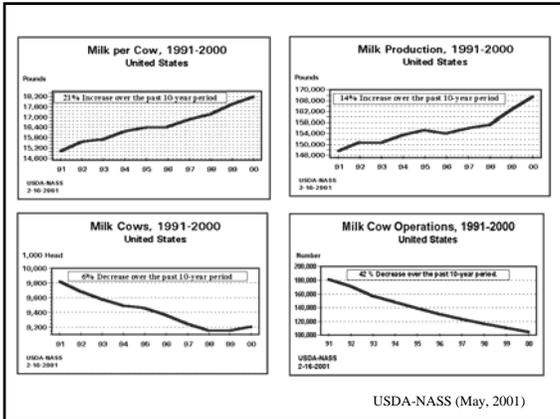


- There is no single “Animal Agriculture.”
- The various animal industries compete for the same consumer dollar.
- Profit in food production tends to be up and down-stream from the farm.
- Animal protein consumption per capita has remained almost constant during the past 50 yrs.
- Chemical and mechanical technologies increasing.
- Majority of food is increasingly being produced by fewer and fewer farmers.



USDA-NASS
(May, 2001)

- 1) Greater use of technology has led to less stoop labor,
- 2) But it has also led to fewer farms and farm communities.



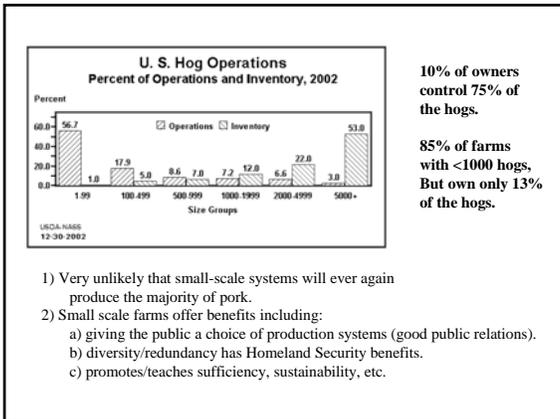
USDA-NASS (May, 2001)

2030: Trend is toward larger systems

- Combination of vertical and horizontal integration of USA food production systems.
- Could this lead to systems that are "too large to fail?"



www.friendsoffamilyfarmers.org/?page_id=526



10% of owners control 75% of the hogs.

85% of farms with <1000 hogs, But own only 13% of the hogs.

- 1) Very unlikely that small-scale systems will ever again produce the majority of pork.
- 2) Small scale farms offer benefits including:
 - a) giving the public a choice of production systems (good public relations).
 - b) diversity/redundancy has Homeland Security benefits.
 - c) promotes/teaches sufficiency, sustainability, etc.



2030: Trend is for American products to be produced off-shore.

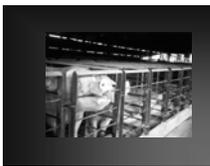
Through Science and Technology we have solved many problems:

- developed a system that presents food in abundance.
- at a very reasonable price.
- freed up workers from stoop labor.



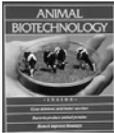
But we are now confronted with new problems!!

- animal welfare.
- environment (waste management, etc.)
- declining farm numbers and loss of rural communities.



Technology is neither good nor bad; nor is it neutral.

Melvin Kranzberg (1989)



Is a steak without a steer
more humane – or ethical?



Answer has to do with
Animal quality of life.

Elements of Moral Philosophy Rachels (1993)

- “Most people believe ... that while the slaughterhouse may be an unpleasant place, the animals that are raised for food are otherwise treated well enough. But ... nothing could be further from the truth.”
- “The slaughterhouse is not an unpleasant end to an otherwise contented existence. As terrifying as the process of slaughter is, for them it may actually be a merciful release.”

*Is it better to have lived as
a steer and become steak
or never to have lived at all?*



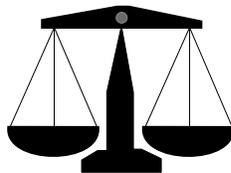
- 1) Vegans propose to “liberate” food animals by bringing forth their non-existence.
- 2) Animals can benefit from their existence, but only IF they experience a reasonable “quality of life”
- 3) Future of animal agriculture may be determined by the degree of “quality of life” animals are provided.

Implication of animal welfare
activities

Trend in public attitudes seems to be toward uncoupling the ownership of the animal’s life from ownership of the animal food products.

**Future trend will involve finding
optimals across issues.**

- ☐ **Minimize the costs to:**
 - animals,
 - environment, and
 - humans (livestock owners, health, worker safety, rural society, etc.)
- ☐ **Maximize the benefits to each party.**



“Goal must be to move animal quality of life from a cost to a benefit.”



What Ray Stricklin hopes one small part of animal agriculture will look like in 2030!

Panel: What Will Animal Agriculture Look Like in 2030?

Looking Ahead to 2030

Adele Douglass
Humane Farm Animal Care

Future Trends in Animal Agriculture Looking Ahead to 2030

Future Trends in Animal Agriculture Symposium
Adele Douglass, Humane Farm Animal Care
December 2, 2009



3



The State of Modern Animal Agriculture

- Our current model of industrial agriculture is unsustainable, to the detriment of:
 - Animals and Crops – needs of animals aren't being met and loss of biodiversity in both animals and plants is great.
 - Environment – Climate change, and dependence on fossil fuels has been detrimental to the environment.
 - Public Health – overuse of antibiotics in farm animals and current US Farm policy subsidizing crops that do not promote health needs of citizens
 - Economy – loss of farms and the farming sector of the economy due to monopolies of markets and trending towards agricultural imports.

4



Animal Welfare

- Large Confinement operations do not address the basic behavioral needs of the animals which lead to stressors that are addressed with preventative antibiotics in their diets, rather than antibiotics only for disease.
- The desire for increased production leads to the use of growth hormones which create welfare problems for the animals.

5



Environment

- Feed crops
 - About 50% of all grain and oilseed crops grown in the US are fed to animals
 - These monoculture crops are heavily reliant on synthetic, chemical pesticides and fertilizers
 - These are significant contributors to soil erosion, nutrient depletion, and aquatic dead zones due to agricultural runoff.

6



Public Health

- Animal agriculture has many associated health risks due to:
 - Hormones
 - Increased exposure with unknown effects
 - Antibiotics
 - Due to excessive non-therapeutic use of antibiotics
 - Over 70% of all antibiotics manufactured in the US are used non-therapeutically in livestock
 - Increasing incidence of antibiotic-resistant bacteria

7



Economy

- **Domestic Issues**
 - Vertical integration of markets can be beneficial but can also be detrimental to farmers.
 - For example, the current composition of the meat market:
 - the top four beef packing companies own 83.5% of the market
 - top four pork packers own 66% of the market
 - and the top four broiler hen and turkey packers control over 50% of the industry (NFU report 2007)
 - Those who control the market dictate the terms of how the animals will be raised, what they will pay the farmers raising those animals – with profit for the company as their primary goal... this creates barriers to market access for all producers
 - We need humane treatment for farmers and farm workers to encourage farmers to stay on farms and reduce the average age of farmers from the current average of 60.

8



Economy

- **Global Issues**

We are trending towards imported agricultural goods

 - According to Census Bureau Foreign Trade Statistics: From 2000 – 2008, we increased our agricultural imports from China from less than \$1 billion to almost \$3.5 billion:
If we do not continue to produce our own food, we will be as dependent on other countries for food as we are for oil.

9



Economy

- **Food Sovereignty:**

In 2008 hunger was a major issue worldwide, there were food riots around the world. The causes weren't because we lacked technology to produce more food, it was because the crops we were producing weren't being used for food. The riots were in response to lack of staple foods, such as rice and wheat due to:

 - The growing inequality of more grains used for meat production and less for human consumption
 - Consequences of global warming (droughts and flooding)
 - Growing of crops for use as bio-fuels used to fuel industry and automobiles, not for food

10



Climate Change

- **Energy Use**
 - Our current fossil fuel-based production, very energy-intensive
 - EPA reports, 13% of US greenhouse gas (GHG) emissions come from the provision of food, including electric power use and transportation
- **GHG Emissions:**
 - Estimates show animal agriculture responsible for 18% of all US GHG emissions, 60% of which comes from meat, poultry, eggs, fish, and dairy

11



Finding Hope in our Current System

There are traditional and innovative animal agriculture practices that are currently in place that are contributing to a healthy ecosystem, food supply, and economy.

- Certified Humane®
- Organic
- Local/Regional Food System Infrastructure

12



Certified Humane®

- **Benefits:**
 - Allows animals to freely express normal behaviors by requiring adequate space and environmental enrichment for the animals;
 - Standards have strict air quality requirements;
 - Allows antibiotics only for disease treatment, not allowed routinely. Prohibits growth hormones;
 - Standards based on sound science from nationally and internationally recognized scientists.

13



USDA/Organic

- **Benefits**
 - Environment:
 - promotes soil health, reduces erosion,
 - encourages biodiversity,
 - prohibits the use of chemical fertilizers and pesticides, and
 - reduces overall energy usage and GHG emissions

14



Local/Regional Food Systems

- **Mobile Slaughtering:** a very successful pilot program for mobile slaughter which
 - Reduces processing and transportation costs and addresses the Issue of lack of slaughterhouse access in many areas across the US.
 - Keeps small-scale producers viable
- **Improved Market Access**
 - Direct marketing through farmer’s markets and farm-to-institution programs increases market access for farmers and consumers. These programs would be in addition to the current retail market structure that we already have.

15



The Future of Animal Agriculture

- To ensure animal welfare, food security and a healthy environment, as well as economic viability as part of a national food security policy, in 2030, the future of animal agriculture will address the needs of the entire US population. It will have moved away from our current policies, expand on existing sustainable practices, and incorporate the following elements:
- Humane Treatment – the needs of the animal, not measured just by production
 - Alternative Energy Use
 - Harmonizing Domestic/Global Economy
 - Scale Appropriateness
 - Biodiversity
 - Food Sovereignty

16



Animal Welfare

- Certified Humane® Standards as the norm for animal agriculture.
- Standards apply from birth through slaughter.
 - Animals have ample space, shelter and gentle handling to limit stress.
 - Ample fresh water and a healthy diet of quality feed, without added antibiotics or hormones.
 - Animals must be able to exhibit normal behaviors. For example, chickens are able to flap their wings and dust bathe, and pigs have the space to move around and root, and housing systems reflect the needs of the animals.
- THESE STANDARDS MEASURE WELFARE IN TERMS OF THE PHYSIOLOGICAL AND BEHAVIORAL NEEDS OF THE ANIMALS IN ADDITION TO HEALTH AND PRODUCTION. THE CURRENT METHODS OF WELFARE MEASUREMENT ARE BY PRODUCTION AND HEALTH.**

17



Alternative Energy Use

- **Shift away from fossil-fuel reliance**
 - Animal diets that do not require chemically-intensive crop production
 - Local inputs/processing/distribution; decrease transportation costs
- **Renewable Energy**
 - Solar
 - Wind
 - On-farm energy production
 - And other emerging renewable energy sources, that are yet to be developed.

18



Economic Viability

- **Domestically:**
 - Improve market access for local food distribution
 - Improve contract/market fairness to ensure a fair price to producers
- **Globally: Focus on national production**
 - Food security requires that we
 - Avoid dependence on foreign imports
 - Have diversified approaches to feed a growing population
 - Require less inputs, better irrigation systems
 - Look at other diversified agro-ecological farming methods and see what can be incorporated into our farming systems.

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Scale-Appropriateness

- **One-size does not fit all.** This is important to remember when trying to define a large, small, medium size farm.
- Animal operations should be limited dependent on the particular behaviors or requirements of that species and the region in which the operations are located for welfare, and environmental reasons

20



Biodiversity

- **Integrated agricultural practices**
 - Diversified animal and crop production preserves soil health and habitats
- **Genetic diversity**
 - We are moving away from genetically diverse animals and plants with the growing biotech industry. Genetic engineering and animal patenting have put a lot of public and private research dollars into this industry.
 - Federal research dollars should be spent researching systems that improve genetic diversity and preserving the heritage animal breeds that exist and creating seed banks for the diversity of seeds before they are extinct.
 - With no genetic diversity, animals and crops are susceptible to epidemics and elimination, for example: the corn blight of 1970, which wiped out 15% of US corn production, roughly 50 million acres.

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Biodiversity

An article in *The Washington Post*, on Thanksgiving Day, reported that the:

- University of VA and University of MN received a USDA grant of \$908,000 to complete the genetic map of the domesticated turkey and
- “The possibilities for genetic manipulation seem endless. At a minimum, **the turkey might be genetically engineered to convey a bit more flavor.**”
- “The traits you might want to improve are sometimes complex and not defined by a single gene...**people might want a turkey to taste more like a wild turkey. You can start by addressing flavor traits, texture traits.**” said Otto Folkerts, associate director of technology development at the Virginia Bioinformatics Institute at Tech.

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Biodiversity

There are currently many flavorful “heritage” breed turkeys already in the US. According to the American Livestock Breeds Conservancy (ALBC):

- 5 Breeds have fewer than 500 breeding birds, (critical list)
- 2 Breeds have fewer than 1000 breeding birds, (threatened list)
- 5 Breeds have fewer than 5,000 breeding birds, (watch list)

My Thanksgiving table had one of these, the “Bourbon Red” – flavorful turkeys are available and could be made more available.

The current tasteless turkey was bred for production purposes, larger breast, etc. not for taste. Now let’s take this bird and genetically engineer it to have taste. Why re-invent the wheel? “Tasty Turkeys” already exist.

We need to prioritize expenditure of research dollars for our long term agricultural needs. Preserving biodiversity is in our long term best interest

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Biodiversity

- **Biotechnology:**
 - We determine our priorities on biotech research
 - Can help us solve problems:
 - Sex chick embryos in order to eliminate male embryos so that male chicks do not have to be macerated because they are not used in the laying hen industry.
 - Sex semen so that there are no male dairy cows born in dairies, since these are considered animals that have no economic value and are removed immediately and go to the veal industry.

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Food Sovereignty

- **Farm viability**
 - Subsidy payments – should reflect needs of farmers and real markets, and be reviewed independently, by panels of farmers, economists, members of NIH and CDC (health specialists) to determine what we as a nation need.
 - small and mid-sized farmers should receive equal treatment in contracts and subsidy payments
 - Reduce need for off-farm income
 - Appreciate scale-appropriateness in developing and implementing regulations

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Food Sovereignty

- Food Sovereignty:
 - Animal Agriculture faces a growing population with an ever-increasing demand for animal agricultural products.
 - production methods that should be encouraged are those that: provide more local food distribution for increased security, rather than large centralized concentration of animals. When you have, for example, 7.2 million cattle on feedlots in Texas, it wouldn't be difficult to imagine how homeland security could be concerned about this.
 - Benefits to the environment.
 - Designed to meet the animals' behavioral and physiological needs.

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Climate Change

- Adaptation
 - Less-intensive systems require fewer inputs
 - Decrease dependence on fossil fuels
 - Diverse systems use less water than monocultures and industrial feedlots; especially important in light of climate effects such as water scarcity. Water scarcity is a serious issue and one that we need to address.

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How Will We Get There?

- US Food Policy: Must reflect the needs of the entire US population
- Education
 - Consumers: What is "cheap food?" What are the consequences of your food choices on your health? Consumers need access to affordable foods that are nutritious for their health and well being and do not create health risks.
 - Farmers: Need training, financing
 - Industry: it is possible to be profitable in the shift to more sustainable methods of production: price premiums for quality products. The companies that will survive already know this.

28



US Food Policy

- Change our current food policy to:
 - Provide grants or low cost loans to farmers to convert to more humane animal housing practices
 - Subsidies for humane treatment and organic production
 - Subsidies for production of nutritious foods such as fruits and vegetables for human consumption.

This is a win-win for everyone... Animals, Farmers, Consumers, and Industry.

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Resources

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What Should Animal Agriculture Look Like in 2030?

Matt Sutton-Vermeulen
Unison Resource Company

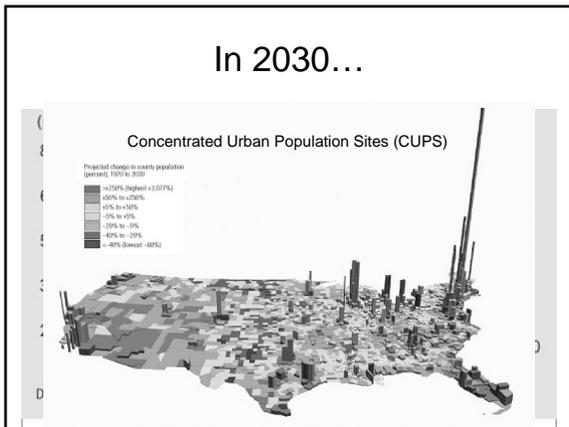


What Should Animal Agriculture Look Like in 2030?

Matt Sutton-Vermeulen, President

Innovative Partnering Solutions

My Bias

livestock's long shadow

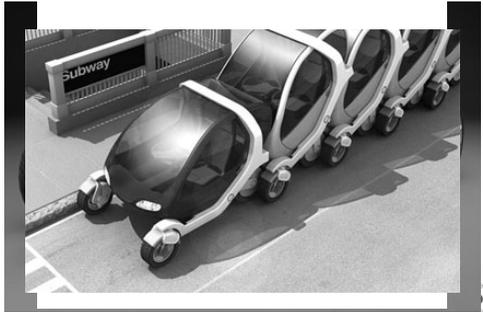
environmental issues and options



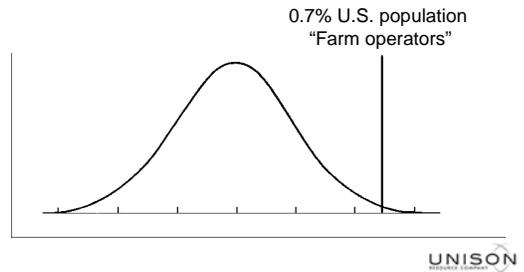
- Replace** current suboptimal production with advanced production methods for efficiency gains.
- Accept** that intensification and industrialization of livestock production is the inevitable long-term outcome.
- Adjust** grassland-based production... landscape maintenance, biodiversity protection, clean water and eventually carbon sequestration.
- Develop** and implement effective policy frameworks.

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What Will Other Things Look Like in 2030?



The Few. The Proud. The U.S. Farmers.



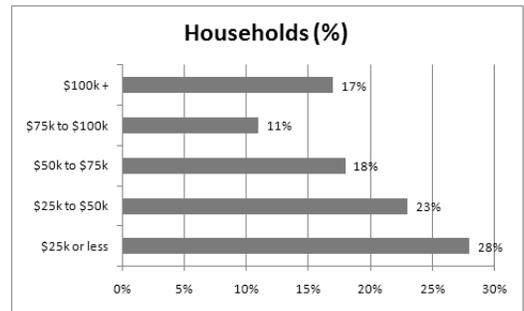
What Should Animal Agriculture Look Like in 2030?

Continuous improvements to its...

- Safety
- Nutrition
- Affordability
- Transparency

UNISON
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Households (%)



US Census 2006 Economic Survey

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Unacceptable Food Security



Americans without access to enough food for an active, healthy life.

Source: USDA

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Transparency

- Closing the public awareness gap
- Reducing variance
- Celebrating good work

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Farm Animal Care Project

A proactive communication outreach from farmers to consumers demonstrating their commitment to provide appropriate care to their farm animals.

- Team
 - Land grant university faculty
 - Meat, milk and egg producer organizations
 - Grain producer organizations
 - Farm bureau
 - State veterinarian



Farm Animal Care

- Close the awareness gap
- Enable concerns to be reported and addressed
- Serve as a confidential resource



Screen shots for example only

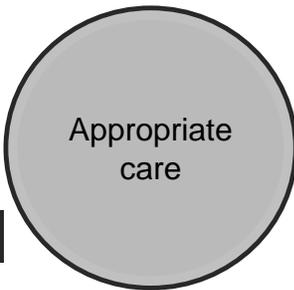
Farm Animal Care Mind Map

Responsible parties

Farmers
Producers
Others

Community

Law enforcement



Actions

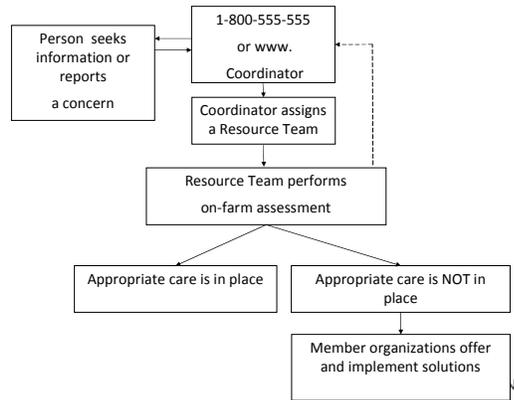
Public awareness

Awareness Evaluation
Help

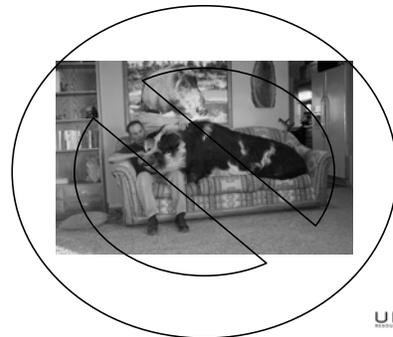
Charge and seizure

Marginal care

Cruelty or Neglect



Closing The Awareness Gap



Celebrating Good Work



Celebrating Good Work

2% of the cost

Reduces speeds by 15%

Increases compliance by 50%



Celebrating Good Work

- Animal Well-being Awards
- Scholarships
- Cross culture immersion opportunities



What Should Animal Agriculture Look Like in 2030?

Replace current suboptimal production with advanced production methods for efficiency gains.

Accept that intensification and industrialization of livestock production is the inevitable long-term outcome.

Transparent communications

Close the awareness gap

Enable concerns to be reported and addressed

Serve as a confidential resource



Why Should Animal Agriculture Look Like That in 2030?

Food security for America and all Americans

The continuous improvements made by American farmers deserve to be celebrated



Thanks

- Dr. Reynnells and USDA
- Ken Klippen
- My family
- American farmers

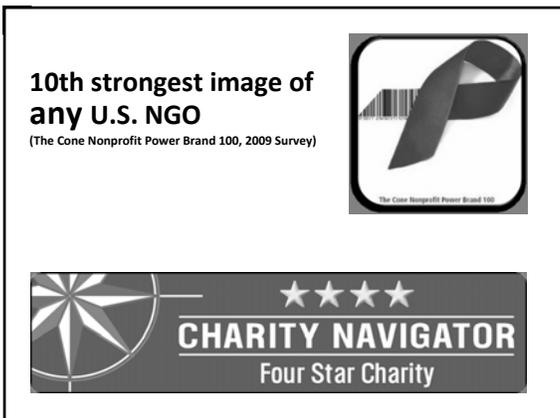


Panel: What Should Animal Agriculture Look Like in 2030?

Paul Shapiro
Humane Society of the United States



supporters:	11 million
staff:	470
revenues:	\$131 million
direct care:	70,000 animals





CLEVELAND AMORY BLACK BEAUTY RANCH

America's largest & most diverse animal Sanctuary

Go About The Ranch | News | Meet Our Residents | Get Involved | Ways To Give | Media Room | Contact Us

MEET THE ANIMALS OF BLACK BEAUTY RANCH

DONATE NOW

WAYS TO GIVE

CLICK HERE TO FEED ANIMALS FOR FREE

SIGN UP FOR OUR NEWSLETTER

First Name

Last Name

"I have nothing to fear, and here my story ends. My troubles are over, and I am home."

Horse Rescue and Adoption Center Planned

The Cleveland Amory Black Beauty Ranch will soon be home to a horse rescue and adoption center, thanks to the generosity of the Doris Day

Click here if you're interested in providing a loving home for one of these mustangs

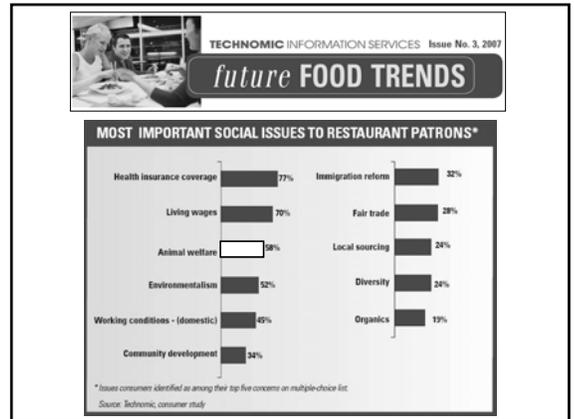


Americans want legal protection

all 50 states:

- have anti-cruelty laws
- ban dog fighting
- ban cock fighting

\$5,000 REWARD
Report Dogfighting



American Farm Bureau-funded poll

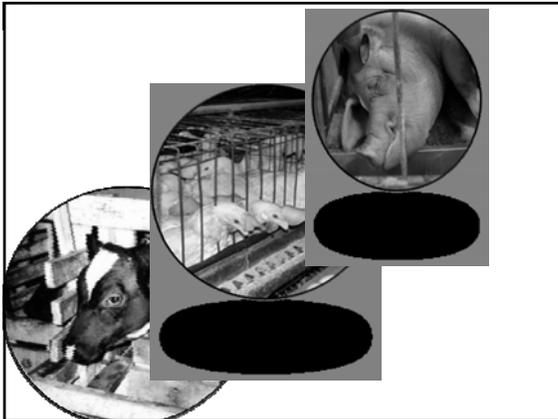
95%: it is important to me that farm animals are well cared for

89%: food companies that require farmers to treat their animals better are doing the right thing

70%: food companies that require farmers to treat their animals better, no matter what it costs farmers, are doing the right thing



**do people's views
align with standard practices?**



“Animal producers will never convince the public that they care about their animals if they house them in stalls where they can't turn around for months.”



— David Fraser, University of British Columbia

American Farm Bureau-funded poll

only 31% think cages for hens are humane

only 18% think gestation crates are humane





do standard practices
align with sound science?

“Virtually **all aspects of hen behavior are thwarted by battery cages**. ...research has confirmed what common sense already knew — **animals built to move must move.**”



— Dr. Bernard Rollin, Department of Animal Science, Colorado State

“Battery cages present **inherent animal welfare problems**, most notably by their small size and barren conditions. ...**Cage-free egg production...is a very good step** in the right direction.”



— Dr. Michael Appleby, author of Poultry Behaviour & Welfare

LayWel

Welfare implications of changes in production systems for laying hens



- most comprehensive analysis
- working groups in 7 European countries
- european commission funding
- data from 230 different flocks

“With the exception of conventional cages, we conclude that all systems have the potential to provide satisfactory welfare for laying hens.”

Table 3. Relative (scale 0–10) and absolute welfare scores (based on attribute scores and weighting factors) computed with the computer model FOWEL for 22 poultry production systems, in sequence of score.

No.	Production system	Welfare score	
		Relative	Absolute
1	Cage system	0.0	55.67
2	Cage system, lower density	0.3	59.87
3	Enriched cage system	2.3	92.82
4	Aviary system, semi-intensive, no free range	5.8	149.77
5	Barn system, no free range	5.9	150.43
11	Aviary system, extensive, no free range	6.1	153.10
12	Aviary system, semi-intensive, free range	6.1	154.27
13	Aviary system, semi-intensive, covered free range	6.3	156.77
16	Aviary system, semi-intensive, covered and uncovered free range	6.3	156.77
7	Barn system, semi-intensive eggs, free range	6.3	157.43
7	Barn system, semi-intensive eggs, covered and uncovered free range	6.5	159.93
6	Barn system, semi-intensive eggs, covered free range	6.6	162.18
13	Aviary system, free-range eggs	6.7	163.10
8	Barn system, free-range eggs, intensive	6.7	163.27
9	Barn system, free-range eggs, extensive	6.7	163.27
17	Aviary system, free-range eggs, covered and uncovered free range	6.8	165.60
15	Aviary system, extensive, covered free range	7.0	169.84
18	Organic production, barn or aviary system, free range	7.8	181.37
20	Uncultivated poultry (chickens, pheasants)	8.7	196.00
21	Plantation (Laying Hen project)	9.2	204.17
22	Roundel (Laying Hen project)	9.6	209.67
10	12-hen system	10.0	216.64

“Gestation crates are a real problem. ...**basically you’re asking a sow to live in an airline seat.** ...I think its something that needs to be phased out.”

— Dr. Temple Grandin, renowned animal welfare scientist



“Since overall **welfare appears to be better when sows are not confined throughout gestation**, sows should preferably be kept in groups.”



— European Commission Scientific Veterinary Committee

“[T]he housing of calves in individual pens, and the tethering of calves, result in problems for their welfare which are significantly reduced when the calves are **group-housed on straw.**”



— European Commission Scientific Veterinary Committee

the Pew Commission

funded by Pew Charitable Trusts
& Johns Hopkins School of Public
Health



30 month extensive study



chaired by former Gov. of Kansas

scientists, veterinarians, & former
Secretary of Agriculture



"The Commission recommends the phase-out, within ten years, of all intensive confinement systems that restrict natural movement and normal behaviors, including swine gestation crates...cages used to house multiple egg-laying chickens...and the tethering or individual housing of calves for the production of white veal."

Panel: What Should Animal Agriculture Look Like in 2030?

Christine Bushway, Executive Director
Organic Trade Association

Future Trends in Animal Agriculture Symposium What Should Animal Agriculture Look Like in 2030?

Christine Bushway
Executive Director & CEO
Organic Trade Association



What Should Animal Agriculture Look Like in 2030?

In short...a lot more like organic agriculture

Organic refers to the way agricultural products are grown and processed.

It includes a system of production, processing, distribution and sales that assures consumers that the products maintain the organic integrity that begins on the farm.



Organic Agriculture

- Setting the stage for U.S. national organic standards, the U.S. Congress adopted the Organic Foods Production Act (OFPA) in 1990 as part of the 1990 Farm Bill.
- This action was followed by over a decade of public input and discussion, which resulted in a National Organic Program final rule published by the U.S. Department of Agriculture (USDA) in December 2000 and implemented in October 2002.
- These stringent standards put in place a system to certify that specific practices are used to produce and process organic agricultural ingredients used for food and non-food purposes.
- National organic standards set out the methods, practices and substances used in producing and handling crops, livestock and processed agricultural products.
- 100 certifying agencies are accredited by USDA worldwide.



Organic Animal Agriculture

A trend that is here to stay!

- Organic sales in the United States reached \$24.6 billion in sales in 2008.
- Organic food now accounts for 3.5% of all food products sold in the U.S.
- Dairy & Eggs = 16% of organic food sales, the second largest category after fruits and vegetables. An estimated 5% of dairy products consumed in the U.S. are organic.
- Meat & Poultry = 2% of organic food sales, a small category but historically fast growing.
- Organic is recognized as the fastest growing sector of agriculture.



Source – Organic Trade Association's 2009 Organic Industry Survey

Organic Agriculture

- Between 2000 and 2005 the number of certified organic dairy cows increased from 38,000 – 86,000*
- In 2005 there were 4 million acres in organic production in the U.S.
 - 1.7 million acres cropland
 - 2.3 million acres pasture or range land

Adopting organic animal agricultural practices requires changes in animal husbandry, land and crop management, input sourcing (feed and forage), paperwork, and a lengthy transition period!



*Source – USDA ERS Report Number 82

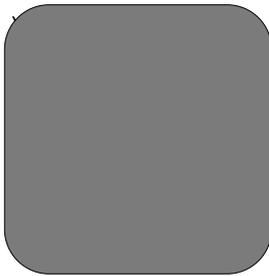
Key Trends in Animal Agriculture

Overview

- Consumers increasingly care about animal welfare
- Increased emphasis on pasture-based systems
- Certification, audit and inspection to demonstrate practices and compliance
- Indoor and outdoor space requirements for livestock – No routine confinement



Consumers Care About Animal Welfare, Younger Consumers Care A Lot



*Source – 2009 U.S. Families Organic Attitudes and Perceptions Study

Trend Toward Certification, Audit & Inspection

- Gold Standard
- Other Labels



Trends in Pasture-Based Systems

Younger farmers are more likely to use pasture based systems*



*Source – USDA ERS Report Number 82

What do the Organic Regulations Say?

- Select species and types suitable to site specific conditions and for resistance to disease and parasites
- Maintain animals under conditions which provide for exercise, freedom of movement, and reduction of stress appropriate to species
- Minimize stress and pain when conducting physical alterations to promote animal's welfare
- Provide access to the outdoors, shade, shelter, exercise areas, fresh air, and direct sunlight
- Living conditions which accommodate the health and natural behavior of the livestock



Organic and Ruminants

Organic **ruminant** agriculture leads the way in pasture-based systems, animal living conditions and health care practice standards.



What do the Organic Regulations Say?

Dairy and beef organic production systems rely on ecologically based standards that prohibit the use of antibiotics and synthetic growth hormones in the herd and synthetic toxic chemicals in feed production.

Organic dairy farmers report fewer instances of mastitis.*



*Source – OTA's *The Organic Report*, Winter 2009

What is the Future for Organic Ruminants?

Final Pasture Rule

- USDA's National Organic Program plans to release the long-awaited final pasture rule early 2010
- The pasture rule will clarify and provide consistency and enforceability to the standards and the requirement for pasture-based systems for ruminants



What is the Future for Organic Ruminants?

Final Pasture Rule – definition of pasture as a crop...

The future looks like:

Improved pasture management – rotational management, nutritional quality, soil health, conservation practices (like all other organic crop management systems)



What is the Future for Organic Poultry?

- National Organic Standards Board – *citizen advisory board to the Secretary on organic*
- Metrics for species specific space requirements
 - Stocking rates (outdoors)
 - Stocking densities (inside)
- Clarification of requirements for outdoor access for poultry



Organic Production Above and Beyond



Objectives:

- Science based welfare standards that make a real difference to quality of life
- To ensure that all poultry and livestock raised for use in Applegate Farms products are treated humanely. We clearly outline our standards of humane treatment and require agreement and adherence from all growers, suppliers and processing plants that supply us.

Standards:

- No antibiotics
- No growth hormones
- No animal byproducts
- Space to exhibit natural behaviors
- Environmental enhancements to reduce stress and boredom
- Science based proven production practices
- Mandatory annual farm audits

Applegate Farms

- **Pork**
 - No gestation stalls
 - Farrowing pens not crates
 - At least 75% of pen flooring is solid
 - Open to outside ventilation
 - Tail docking prohibited
 - Specific weaning age requirements
- **Poultry**
 - Standards that protect leg conditions and prevent foot lesions
 - Housing standards to prevent “dirty birds” caused by wet housing and crowding
 - Ammonia/ventilation standards
 - Humane catch and transport (maximum of 10 hours transport time)
 - Hatchery handling standards
 - No de-snooding of turkey
 - No de-beaking of broiler chickens



Applegate Farms

- **Beef**
 - Standards that protect against lameness and poor body condition
 - Transport space and time requirements (max transport time of 12 hours)
 - Standards that protect against sun, wind, cold in feedlots
 - Maximum age for dehorning and castration
 - Time and space requirements in feedlots
 - Humane handling requirements
 - Moving cattle with flags not hot shots
 - Chute and plant design with herd animals in mind



Applegate Farms

Future Expectations for Animal Agriculture

- Increased regulatory oversight on CAFO's
- Feedlots include mandatory forage and weather protection
- No sub-therapeutic use of antibiotics
- No animal byproducts
- No artificial hormones
- Recommendations on space requirements by species



Organic Producers Go Above and Beyond



In 2006, Horizon Organic developed the “Standards of Care” to address animal welfare and other practices/philosophies used on its own farms which were not covered in the National Organic Program standards.

- Horizon's passion is for a natural, holistic system producing pure, safe dairy products while improving the health of consumers, animals, and our planet.
- As the 1st and largest national organic dairy brand, they feel a responsibility to continued improvement on their own farms as well as the industry's organic production practices.
- They advocate for clear and tough organic standards that go beyond what is currently required by the USDA.
- The “Standards of Care” have been developed in collaboration with farmers and industry partners, and lay out a comprehensive set of beliefs, as well as specific management practices.



Horizon Organic

Horizon Organic's livestock and farm management standards are guided by nine belief statements –

We believe:

- in raising our own calves from certified organic mothers to ensure the organic integrity of our herds from generation to generation.
- animal care and welfare should be holistic, preventive, and natural. We feel a moral obligation to care for our animals and to treat them humanely and with respect.
- good nutrition starts with the soil. Building and maintaining healthy soil is the basis for animal nutrition and successful organic farming.
- grazing is about managing the complex interaction between the grass, the land, and the cows. Grazing processes should emulate natural herd behaviors.
- pasture management should be sustainable while regenerating soil, land, and water resources and, also, enhancing the growth and nutritional value of the grass.
- organic dairy cattle should be outside as often as possible, year-round, to graze, exercise, socialize, and interact with the land.
- in sustainable farming practices that protect and enhance our natural resources for the good of our animals, our communities, and our planet.
- in limiting off-farm inputs on our dairy farms to better control organic quality.
- in maintaining detailed annual plans for our farms and evaluating our performance against those plans.

Horizon Organic Standards of Care

- **Low-stress livestock handling.** The farms use low-stress livestock handling practices that focus both on the physical and the mental well-being of animals; they are always treated with respect. This ensures the animals feel safe, and live in an environment that is calm and free of actions and behaviors that could create stress.
- **Preventive health.** The best way to raise healthy cows is to provide them with quality pasture, high-forage diets, low-stress birthing, freedom of movement, and comfortable and clean living conditions—all of which contribute to preventive health care. Veterinary check-ups, vaccinations, and close monitoring prevent illness. Standards prohibit the use of antibiotics, bovine growth hormones, cloned livestock, or genetically modified feed crops.
- **Treating illness.** The first and best defense against illness is prevention. When a calf or cow does become ill, we rely on natural and alternative veterinary methods as our preferred treatment.
- **We always consider the well-being of our animals first, and never allow an animal to suffer.** If a sick animal cannot be restored to full health with organic approved treatments, we administer antibiotics or other medicines. However, the animal is then no longer considered “organic” and must be permanently removed from the herd.

What Should Animal Agriculture Look Like in 2030?

Organic agriculture!



Christine Bushway, Executive Director & CEO, Organic Trade Association
CBushway@ota.com * (413) 376-1233
www.OTA.com

Panel: What Should Animal Agriculture Look Like in 2030?

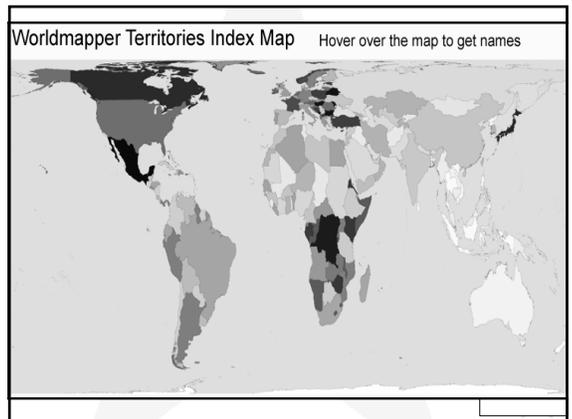
Jennifer L. Greiner

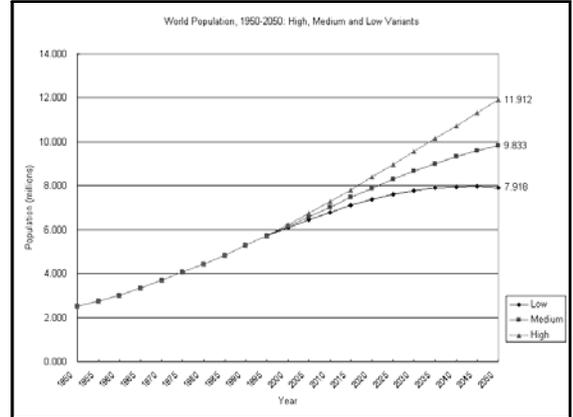
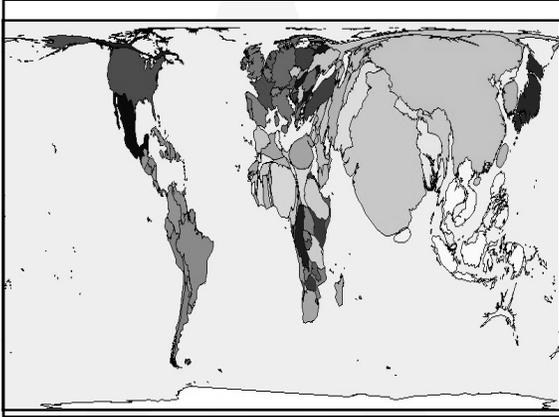
Future Trends in Animal Agriculture Symposium
Washington, DC
December 2, 2009



**What Should
Agriculture Look
Like in 2030**

Jennifer L. Greiner, DVM
Director, Science and Technology
National Pork Producers Council





Ethical Principles for U.S. Pork Producers

U.S. pork producers recognize our obligation to build and maintain the trust of customers and the public in our products and our practices. To promote confidence in what we do and how we do it, we affirm the following ethical principles.

- **Food Safety**
We affirm our obligation to produce safe food.
- **Animal Well-Being**
We affirm our obligation to protect and promote animal well-being.
- **Environment**
We affirm our obligation to safeguard natural resources in all of our practices.
- **Public Health**
We affirm our obligation to ensure our practices protect public health.
- **Employee Care**
We affirm our obligation to provide a work environment that is safe and consistent with our other ethical standards.
- **The Communities in Which We Operate**
We affirm our obligation to contribute to a better quality of life in our communities.



Feeding A Hungry World

- In 50 years, we will need 100% more food than we produce today.
- FAO estimates that 70% of the additional food supply must come from using efficiency-enhancing technologies.
 - 10% will come from increases in cropping intensity
 - 20% will come from land expansion



Importance of Protein on the Plate

- Meat provides "nutrients of concern", such as potassium, iron and vitamin B12, which are found *only* in food from animals
- Iron and zinc more easily absorbed when they come from meat rather than vegetables
- Published in The Journal of Nutrition, S.P. Murphy and L.H. Allen designed snacks school-aged children Kenya
 - Added milk or beef to the diets
 - Snacks provided more nutrients when animal and plant proteins were combined



What Should Agriculture Look Like in 2030?

- Freedom to operate in a socially responsible manner
- Opportunity to produce a wide variety of high-quality protein products to meet the demands of today and tomorrow's consumers
- Continue to use and implement new technologies to produce safe, wholesome food
- Privilege to produce high-quality, affordable protein products to feed a growing, hungry world



We Have A Moral Obligation To Teach The Hungry World To Feed Itself, And Producers Are Proud To Have That Opportunity.

Jennifer L. Greiner, DVM
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NOTES