

White Paper

Living in a World of Decreasing Resources & Increasing Regulation: How to Advance Animal Agriculture

**Information synthesized from the 2012 Annual Conference of the
National Institute for Animal Agriculture
March 26-29, 2012**

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Background

The National Institute for Animal Agriculture (NIAA) is a non-profit, membership-driven organization that unites and advances animal agriculture: the beef, dairy, equine, goat, poultry, sheep and swine industries. NIAA is dedicated to programs that work toward the eradication of diseases that pose risk to the health of animals, wildlife and humans; promote the efficient production of a safe and wholesome food supply for our nation and abroad; and promote best practices in environmental stewardship, animal health and well-being.

The theme for NIAA's 2012 Annual Conference was "Living in a World of Decreasing Resources & Increasing Regulation: How to Advance Animal Agriculture." Presenters in the Opening General Session and Closing General Session addressed this topic, providing a 360-degree view:

- **"Advancing Animal Agriculture with Scarce Resources"** –Dr. Terry Barr, Senior Director of Knowledge Exchange Division, CoBank
- **"Regulating Animal Agriculture: Impacts on Producers and Animal Health Professionals"** – Dr. Anthony A. Frank, DVM, President, Colorado State University
- **"Making Safe, Affordable, Abundant Food a Global Reality"**—Mr. Brian Rittgers, Director of Global Management Development, Elanco
- **"Legal Threats to Animal Agriculture"**—Mr. Gary Baise, Olsson Frank & Weeda, PC, Washington, D.C.
- **"Sustainability: Today and Beyond—What This Means on My Family's Farm"**—Ms. Marie Audet, Blue Spruce Farm Inc., Bridport, Vt.
- **"Help or Get Out of the Way"**—Mr. Tom Kourlis, Sheep & Cattle Rancher, Past Colorado Commissioner of Agriculture
- **"Promoting and Defending Modern Agriculture in a Facebook Culture"**—Dr. Gary Sides, Pfizer Animal Health

The 50-plus experts speaking during NIAA's Committee and Council Meetings provided further insight into "Living in a World of Decreasing Resources & Increasing Regulation: How to Advance Animal Agriculture" from a species-specific or highly targeted topic angle:

- Bovine Committee
- Equine Committee
- Poultry Committee
- Small Ruminant Committee
- Swine Committee
- Animal Care Council
- Animal Health, Emergency Management Council
- Animal Identification and Information Systems Council
- Antibiotics Council
- Emerging Diseases Council
- Global Animal Health, Food Security and Trade Council

NIAA's Annual Conference Planning Committee consisted of representatives of livestock producers, veterinarians, academia, government and agribusiness involved in animal agriculture.

Executive Summary

A recent survey of America's young farmers and ranchers revealed that 97.2 percent planned to farm and ranch for life; and 90 percent said they would like their children to follow in their footsteps.¹ This desire to remain in agriculture provides strong incentive for today's farmers and ranchers to identify challenges and opportunities within animal agriculture, to learn how to turn challenges into opportunities and to gain the skills and knowledge needed to work with the challenges and constraints that they face.

Adding pressure to U.S. farmers and ranchers is the fact that world population continues to grow, and many countries look to the United States as a key source for animal protein. This challenge for U. S. farmers and ranchers to help meet increasing global demand for meat is occurring simultaneously as agricultural land and resources dwindle and as regulations impacting animal agriculture increase.

Challenges and Opportunities for Animal Agriculture

The demand for animal protein in the next 38 years is anticipated to increase significantly. Economists estimate that by the year 2050, global meat production must increase by 73 percent to meet the expected 43 percent boost to the world's population. Three other basic factors driving global demand for animal protein are economic growth and income, the rising middle class of countries—particularly China and India—and urbanization. Broken down by species, to meet anticipated animal protein demand, global poultry production will need to increase by 125 percent, followed by sheep and goat meat, 78 percent; beef, 58 percent; and pork, 37 percent.²

While the United States has a reputation for providing safe, affordable food and will be a major player in helping provide animal protein to meet this growing global demand, economists maintain that the answer is not only intensification of production. Achieving anticipated increased demand for animal protein by producing twice as many poultry, 80 percent more ruminants, 60 percent more cattle and 40 percent more pigs using the same level of natural resources is unrealistic.³ That said, small producers and integrated systems will both play significant roles in helping meet world demand for animal protein.

Constraints in the world's ability to feed all its people include land availability, water supply, technology challenges, climate, energy availability and cost, food waste and losses, food safety and government policy. These constraints, therefore, put the onus on animal agriculture to increase efficiency.⁴

Technology

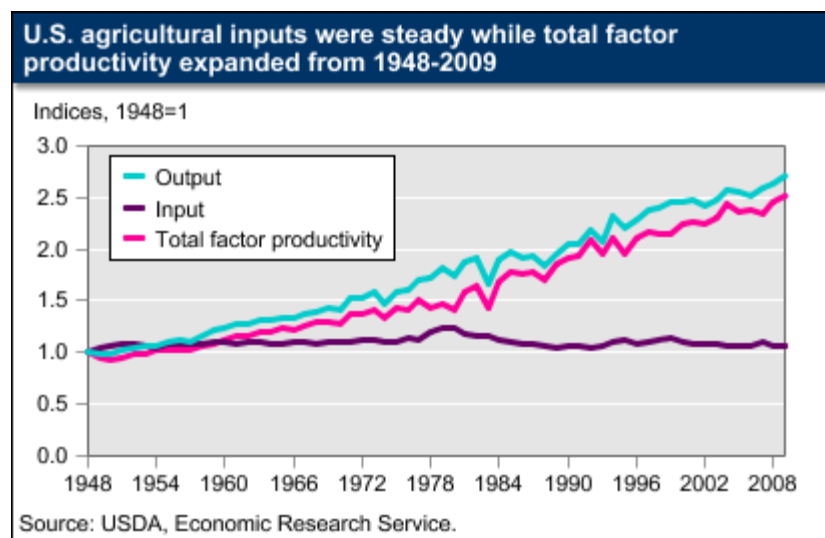
With U.S. animal agriculture among the most efficient in the world, increasing efficiency will require new tools and new ways of doing things. One economist maintains that 70 percent of the anticipated needed food supply will have to come from advancements in efficiency-improving technology: practices, products and genetics.⁵

Technology has been key to past production and efficiency in animal agriculture. For example, in the beef industry, technology has resulted in each pound of beef produced in the United States in 2007

requiring 14 percent less water and 34 percent less land than in 1977.⁶ In the dairy industry, every gallon of milk cows produce today has a 63 percent smaller carbon footprint than it did in 1944. Technology has helped make food more affordable, i.e. today's dairy farmers produce 50 percent more milk from 64 percent fewer cows than in 1944.⁷

In 1940, one person in U.S. agriculture could only feed 19 people. By 1960, one farmer could feed 26 people. Today, a farmer feeds 155 people worldwide. Advances in technology means fewer people are needed in agriculture, allowing individuals to pursue other professions. They become engineers, computer programmers, researchers who discover new cures, doctors who heal more children, teachers who educate today's children, etc. If technology was frozen in the year 1955, it would require an additional 450 million acres—the total land mass of Texas, Colorado, Kansas, New Mexico and Oklahoma—to produce the beef being producing today.⁸

In 1961, the United States population was close to 184 million people. In 2006, that number was greater than 300 million people. Relating those numbers back to 1960, if agriculture technology today was the same as 1960, the United States would either have to expand acres by 63 percent or decrease food consumption by 63 percent.



60 years: Same Input: 250%-plus Output

New technology will improve animal welfare, prevent and control disease, improve nutrient utilization in the animal and enable improved nutrient digestibility in livestock. Improved animal productivity will help reduce the environmental impact of livestock production.⁹

While new technology will require heavily investing in agricultural research and development, today's federal government is lessening its financial support of agricultural research and development that addresses efficiency-improving technology related to practices, products and genetics. "In the 20th century, public investment in agricultural research helped transform U.S. agriculture from a natural-resource-based industry to a science-based industry. But society today is asking the U.S. federal

agricultural research system to address environmental, food safety and rural quality-of-life issues, in addition to the traditional concerns about food costs and trade competitiveness. Today's societal interest in agricultural research is more complex and less obvious. The United States went from a largely rural population—where most people were employed directly in farming—to one where only 2 percent of population are farmers. Moreover, changing consumer demands and new environmental and natural resource problems all affect the role and priorities for public agricultural research.”¹⁰ In addition, federal and state tax dollars dedicated to research and development have become increasingly scarce.

The private sector is to be applauded for stepping up to the plate and investing in research and development. But, the private sector frequently finds implementing and acquiring government approval to be difficult and lengthy due to an increasingly complex regulatory environment and process.¹¹

Regulatory Pressures

While humans have been domesticating livestock for around 10,000 years, only in the last 20 or so years has the onslaught of regulations changed the livestock producers' world so dramatically. And, while no one can predict what the regulatory environment will look like in the next 20 years, experts contend that concerns about food safety, sustainability, environment and animal welfare will increase.¹²

One factor driving today's regulatory environment that impacts animal agriculture—covering the gamut from animal housing and sub-therapeutic antimicrobial usage to environment and labor—is pressure applied by consumers. Unfortunately, a majority of today's consumers are at least three generations removed from agriculture, are not literate about where food comes from and how it is produced, and tend to have high expectations. Because these consumers don't know the people who produce the product, they are driving regulations from a basis of non-trust rather than a basis of trust. The result does not benefit consumers or animal agriculture.

The negative spiral:

- Consumers turn to elected officials who, like them, are often also disconnected from animal agriculture;
- Elected officials respond to the needs of their constituents and set up regulations designed around accountability and safety;
- Implementation of regulations increase taxes for consumers who then have even higher expectations for accountability;
- Producers push back because the cost of regulations makes their long-term sustainability tenuous;
- The negative spiral continues as constituents want more regulation and those in animal agriculture want less regulation so it can be sustainable.

While both consumers and those in food-animal production want safe, affordable food produced by individuals who care about animal welfare, well-being and the environment, this common ground is shrinking due to the negative spiral.¹³

A study showed that regulations imposed by federal, state and local governments can also make domestic farmers and ranchers uncompetitive with competitors overseas and drive them out of business.¹⁴ Over-regulation and under-regulation of animal agriculture is not the answer, and animal agriculture does not expect zero regulatory oversight as regulations can strengthen the quality, safety and market position. That said, science-based, cost-effective regulations are a better solution.

A study of the economic impact of regulations affecting animal agriculture is warranted, with economic analyses conducted periodically thereafter. A focus should also be put on food safety, with concrete evidence determining if certain regulations increase, decrease or not affect food safety. Scientific evidence—not emotion—should be the determining factor whether certain regulations are needed in regards to food safety.

Antimicrobial Use

Increased pressure is being put on the U.S. government to address antibiotic use in animal agriculture production as some consumer and medical groups—plus certain anti-animal agriculture groups with an ulterior motive to eliminate animal agriculture—argue that use of antimicrobials in food animals creates “super bugs.” Science doesn’t support a broad-based ban of antimicrobials in food animals, and the risk-analysis over the years, including some by the U.S. Food and Drug Administration and American Veterinary Medical Association, suggests the risk to human health through this application is very, very small.¹⁵

Any decision to withdraw approval of, or ban, any antimicrobial uses should be based on solid science and risk-based assessment, and not on anecdotal reports and speculation. It is crucial that safe and effective antimicrobials remain available for use in veterinary medicine to ensure the health and welfare of animals and, consequently, the health of humans.

Those within animal agriculture support the judicious use of antimicrobials to maximize public and animal health benefits while minimizing risks, and industry efforts should continue to focus on educating all producers on best practices for antibiotic use. Open conversation surrounding antibiotic use in human and animal medicine needs to engage multiple stakeholders including those within the agricultural industry, public health, academia/researchers, consumers, regulators, policymakers and the media.

In addition, individuals within animal agriculture should be proactive in communicating the industry’s judicious antibiotic use practices to consumers. Livestock and poultry producers should meet with consumers and change the conversation—about judicious antibiotic use as well as other topics of concern such as caring about the environment—to one of shared values. By talking with each other, rather than past each other, emotion-based regulations have an increased chance of being avoided.¹⁶

Exporting to Serve Global Consumers

The United States is a major player in the export market, providing countries around the world with beef, pork, poultry and other meats as well as various dairy products. This situation is expected to continue as the demand for animal protein increases globally.

International markets are a critical source of value in the U.S. livestock and poultry industries. That said, market conditions vary widely from country to country and from region to region, increasing volatility.

As a sector of animal agriculture becomes more export reliant, volatility within that sector also increases. Producers' balance sheets must be strong enough and flexible enough with sufficient liquidity to match the risk associated with export dependence.

To keep the doors of foreign countries open to U.S. animal protein, disease preparedness—animal traceability—takes on increased importance. This requires the attention of those within animal agriculture, as well as funding and support from federal and state government. A U.S. Meat Export Federation report conducted by agricultural economists at Montana State University, Kansas State University and Colorado State University recommends that U.S. animal agriculture view “traceability as investments in the viability of their industry.” The report points out that the United States “lags behind many countries in adopting livestock and meat traceability systems. As major meat importing and exporting countries adopt animal and meat tracking systems, the U.S. is becoming less competitive and risks losing market access.”¹⁷

Politics outside the industry has been known to have an effect on animal agriculture exports, with industries often becoming political pawns for countries that have problems with other U.S. issues. Often a quid pro quo mentality sets up the United States for failure in resolving disputes. Whether a quid pro quo mentality is in effect or not, it is in the best interest of industry for the government to move forcefully and quickly toward resolution in disputes.

Traceability

Preventing and controlling animal disease is critical to protecting American animal agriculture, and U.S. farmers and ranchers work diligently to prevent and control disease in their herds and flocks. While animal traceability does not prevent disease, knowing where diseased and at-risk animals are, where they have been and when is important information in emergency response and in ongoing disease control and eradication programs. An efficient and accurate animal disease traceability system can also help reduce the number of animals involved in an investigation, reduce the time needed to respond and decrease the cost to producers and the government.

Because the United States is among the countries that does not have a mandated, government-controlled/sanctioned, comprehensive animal traceability program in place, private companies and animal health officials at the state and national levels are forging ahead with increasingly sophisticated

electronic systems. This technology can be used to fulfill market-driven consumer demands, satisfy regulatory pressures in areas such as documenting antibiotic use or animal welfare practices and help limit the economic, environmental and social impacts of emergency situations such as disease outbreaks.

The USDA/APHIS is proposing to establish minimum national official identification and documentation requirements for the traceability of livestock moving interstate. Under this proposed rule, unless specifically exempted, livestock belonging to species covered by this rulemaking that are moved interstate would have to be officially identified and accompanied by an interstate certificate of veterinary inspection (ICVI) or other documentation. The ICVI would be issued by an accredited veterinarian—one authorized to perform work on behalf of the Animal and Plant Health Inspection Service—or a federal, state or tribal veterinarian, who would be responsible for ensuring that the animal meets applicable health requirements. The ICVI would, for certain classes of animals, show the official identification number of the animal. It would also contain information about where the animal is moving from and its destination.¹⁸

In today's electronic age, electronic interstate certificates of veterinary inspection (eICVI) is a logical step and has been shown to be feasible in livestock auction markets.¹⁹ In addition, eICVI can lead to a faster disease-response time. This move forward with eICVI, however, will require that industry, state and federal entities collaborate.

While state and federal government officials will continue to support Veterinary Services Process Streamlining (VSPS), a multi-purpose system of the USDA/APHIS/Veterinary Services, government officials appear to understand the value of private ICVI and eICVI systems.

Collaboration, Outreach

In the face of reduced funding and resource availability, collaboration among academic, federal, state, and industry partners is increasingly critical in efforts to advance disease preparedness and response capacity. Collaboration among these entities can also address other areas such as research and development, sustainability, studies focusing on need for—and the impact of—regulations, and dispelling the false choice of safe food or affordable food since consumers can have both safe food and affordable food.

Species-Specific Industry Needs

Bovine, Small Ruminants, Swine. Foot-and-mouth disease (FMD) is a highly contagious viral disease that affects cloven-hoofed animals, including beef and dairy cattle, sheep, goats and pigs—as well as buffalo, camels and deer. FMD is found in many parts of the world, and has been reported in countries in Africa, the Middle East, Asia and South America. While FMD can cause serious production losses, the most significant impact of the disease is its effect on trade in livestock and livestock products as countries without the disease, which include many U.S. major trading partners, do not import from, or severely restrict imports from, an FMD-infected country. In short, if the FMD virus were introduced into the United States, which is FMD-free, the disease could cause billions of dollars in losses to the U.S.

economy. To that end, educational efforts regarding FMD vaccine development, distribution and use by all entities involved in animal agriculture should continue.

Equine. The U.S. equine industry encompasses horses, ponies, miniature horses, mules, donkeys and/or burros. While most U.S. equine operations—95.6%— have full-size horses, one-third of operations had equids other than full-size horses.²⁰ The U.S. horse industry alone has 2 million horse owners who own 9.2 million horses. The U.S. horse industry is a highly mobile industry, with horses moving about for racing, showing, competition, sport, breeding, recreation and work.²¹ According to a 2005 study by the American Horse Council, the horse industry alone provides 460,000 full-time equivalent jobs and has a direct economic effect on the United States of \$39 billion annually and a \$102 billion impact on the U.S. economy when the multiplier effect of spending by industry suppliers and employees is taken into account.²²

Representatives of the U.S. horse industry urge industry, state and federal personnel to collaborate, develop and implement a sound communication infrastructure that would address equine infectious disease outbreaks.

A second major need within the equine industry is a study that would document the direct and indirect economic impact of the 2011 Equine Herpes Virus (EHV-1) outbreak that was traced to a cutting horse competition in Ogden, Utah. In addition to providing highly valuable information, the study would underpin the magnitude of the economic importance of the equine industry.

Poultry. The United States is the world's largest poultry producer and the second-largest egg producer and exporter of poultry meat. U.S. poultry meat production totals more than 43 billion pounds annually, with more than 80% being broiler meat, followed by turkey meat and a small fraction of other chicken meat. The total farm value of U.S. poultry production exceeds \$20 billion, with broiler production accounting for the majority of this value, followed by eggs, turkey and other chicken.²³

The poultry industry is seeing an upswing in popularity of urban and backyard chickens.²⁴ While a majority of owners keep chickens primarily for their eggs, others develop strong human-chicken bonds and view and care for them as pets. Some people keep chickens as a solitary or family activity while others rear their hens in community coops.²⁵ The urban chicken movement increases close contact between people and chickens which, in turn, increases the risk of zoonotic diseases (especially when people are uninformed). In addition, inadequate husbandry and biosecurity due to owner inexperience could result in poor animal welfare (e.g., infectious diseases, malnutrition, behavioral issues, exposure to predators and adverse environmental conditions).

To this end, poultry health information funding is needed so appropriate information can be provided to this audience. This information should be science-based and risk-based, with the focus of the information determined by those from within the poultry industry.

The U.S. poultry industry supplies U.S. consumers, and many global consumers, with a safe product and wants to continue to keep poultry safe. Educational and outreach efforts are needed to mitigate incorrect public perceptions regarding animal welfare and disease prevention.

Swine. The United States is the world's second-largest pork producer and a major player in the world pork market, ranking second as both an importing and exporting country. The United States has 73,150 pork farms that market 120 million pigs each year. Seventy percent of pork farms produce 100 pigs or less per year while 4 percent of pork farms produce 5,000 or more pigs per year.²⁶

Porcine Reproductive and Respiratory Syndrome (PRRS) is the most economically significant disease impacting the global swine industry, with the disease estimated to cost the U.S. pork industry \$664 million per year.²⁷ This viral disease is characterized by two overlapping clinical presentations: reproductive impairment or failure in breeding animals, and respiratory disease in pigs of any age. Projects supported by research funded by the National Pork Board and the USDA's PRRS Coordinated Agriculture Project have been highly successful at eliminating the PRRS virus on targeted individual swine farms, and this work is now expanding to regional elimination of the PRRS virus. Ongoing funding is needed to support these projects and to continue to eliminate the devastation of the PRRS virus on all U.S. swine farms.

Swine influenza (swine flu) is a respiratory disease of pigs caused by type A influenza viruses that regularly cause outbreaks of influenza in pigs. The main swine influenza viruses circulating in U.S. pigs in recent years are swine triple reassortant (tr) H1N1 influenza virus, trH3N2 virus and trH1N2 virus. While swine flu viruses do not normally infect humans and consumers cannot get swine flu from eating pork, a 2009 outbreak of swine flu depressed the U.S. pork industry. The 2009 outbreak caused a short-term reduction in domestic pork demand, and, at the peak on May 5, 2009, official and unofficial bans on pork from the United States were in place in 27 countries, including China – the No. 2 export market for U.S. pork in 2008 –and Russia – the No. 5 market.²⁸

Influenza surveillance efforts have resulted in improved interaction with public health officials. Communicating and building relations with the Centers for Disease Control and Prevention has led to enhanced access to influenza viruses for further study and for vaccine development. Continued surveillance must continue, and consumers must be educated about not getting swine flu from eating pork. In addition, communication and education of the news media is needed so the word “swine” is not used in association with any outbreak of H1N1, H3N2 or H1N2.

African Swine Fever poses an increasing threat to global swine populations and warrants increased research into diagnostics and vaccine development as well as interactions with those unfortunate enough to have been exposed to this devastating disease. With the U.S. swine industry currently exporting more than 25 percent of its production, the introduction of a foreign animal disease would severely damage the swine industry's ability to maintain those export markets and provide foreign consumers with safe, affordable U.S. pork.

Contact Information:

National Institute for Animal Agriculture
13570 Meadowgrass Drive, Suite 201
Colorado Springs, CO 80921
Phone: 719-538-8843
www.animalagriculture.org



Endnotes

¹North Carolina State University, <http://www.cals.ncsu.edu/CollegeRelations/AGRICU.htm>

^{2, 3, 4}Barr, Terry. "Advancing Animal Agriculture with Scarce Resources: An Economic Perspective," 2012 National Institute for Animal Agriculture Annual Conference, March 27-28, 2012

⁵Rittgers, Brian. "Making Safe, Affordable Abundant Food a Global Reality," 2012 National Institute for Animal Agriculture Annual Conference, March 27-28, 2012

^{6, 7} Dairy Management Inc.

⁸Sides, Gary. "Promoting and Defending Modern Agriculture in a Facebook Culture," 2012 National Institute for Animal Agriculture Annual Conference, March 27-28, 2012

⁹Rittgers, Brian. "Making Safe, Affordable Abundant Food a Global Reality," 2012 National Institute for Animal Agriculture Annual Conference, March 27-28, 2012

¹⁰Fuglie K, Ballenger N, Day K, Klotz C, Ollinger M, Reilly J, Vasavada U and Yee J. Agricultural Research and Development: Public and Private Investments Under Alternative Markets and Institutions. Agricultural Research and Development/AER-735.

¹¹Leitner, Tara. "U.S. Poultry Industry Poised to Remain Competitive," March 30, 2012, article summarizing Poultry Industry Expert Roundtable.

^{12, 13}Frank, Anthony. "Regulating Animal Agriculture: Impacts on Producers and Animal Health Professionals," 2012 National Institute for Animal Agriculture Annual Conference, March 27-28, 2012

¹⁴Williamson, Andre. "Cost of Increased Regulations on Animal Agriculture to Producers and Consumers," Animal Care Council, 2012 National Institute for Animal Agriculture Annual Conference, March 27-28, 2012

¹⁵Hoang, Christine. American Veterinary Medical Association, Interview on March 29, 2012.

¹⁶Frank, Anthony. "Regulating Animal Agriculture: Impacts on Producers and Animal Health Professionals," 2012 National Institute for Animal Agriculture Annual Conference, March 27-28, 2012

¹⁷U.S. Meat Export Federation report, "Economic Assessment of Evolving Red Meat Export Market Access Requirement for Traceability of Livestock & Meat," www.usmef.org

¹⁸"Traceability for Livestock Moving Interstate," Federal Register / Vol. 76, No. 155 / Thursday, August 11, 2011 / Proposed Rules, 9 CFR Parts 71, 77, 78, and 90, Docket No. APHIS-2009-0091, RIN 0579-AD24

¹⁹Moest, James. "Use of eICVI at Markets: Benefits and Challenges," Animal Identification & Information Systems Council, 2012 National Institute for Animal Agriculture Annual Conference, March 27-28, 2012

²⁰"Demographics of the U.S. Equine Population," APHIS/VS/Center for Epidemiology & Animal Health, March 2007

^{21,22}National Economic Impact of the U.S. Horse Industry, American Horse Council Foundation, conducted by Deloitte Consulting LLP, 2005

²³USDA/Economic Research Service, <http://www.ers.usda.gov>

²⁴<http://ipsnews.net/news.asp?idnews=107097>

²⁵http://www.avma.org/issues/animal_welfare/AWFocus/110404/urban_chickens.asp

²⁶Purdue University, Food Animal Education Network, <http://www.ansc.purdue.edu/faen/Pork%20Facts.html>

²⁷National Pork Board

²⁸Testimony of the National Pork Producers Council On the U.S. Pork Industry Economic Crisis Before the U.S. House Committee on Agriculture Subcommittee on Livestock, Dairy, and Poultry, October 22, 2009