

National Agricultural Research, Extension, Education, and Economics (NAREEE) Advisory Board

A Report on the Review and Recommendations for Maintaining U.S. Leadership in the Poultry Industry

February 28, 2009

I. Executive Summary

The United States is a world leader in poultry production thanks in part to research, education and extension activities funded by the federal government. Unfortunately, funding for poultry has not kept pace with other commodities over the years, reducing the research and development resources available to the industry.

To identify the current major research needs of the poultry industry and the higher education/research community, the Poultry Work Group of the National Agricultural Research, Extension, Education, and Economics (NAREEE) Advisory Board surveyed organizations including the National Chicken Council, United Egg Producers, and the Poultry Science Association. The latter group includes the academic community serving the industry. To correct the trend of diminishing investment in poultry-oriented research and development, we recommend that USDA:

- Move promptly on the replacement and consolidation of aging facilities at the Southeastern Poultry Research Laboratory in Athens, Georgia. The U.S. Department of Agriculture has already completed a facility review and has recommended this facility as the top building priority for ARS.
- Seek innovative ways to support colleges and universities that still offer Poultry Science majors as well as those that offer majors in Animal Science with an area of emphasis in Poultry Science. This training is necessary to meet the workforce needs of the industry.
- Support critical research needs in:
 - Poultry Health, Disease Prevention and Control
 - Poultry Reproduction, Genetics, Nutrition and Metabolism
 - Poultry Management, Housing and Husbandry
 - Poultry Processing
 - Environmental Impact & Sustainability
 - Food Safety & Human Health

National Agricultural Research, Extension,

Education, and Economics (NAREEE) Advisory Board

A Report on the Review and Recommendations for Maintaining U.S. Leadership in the Poultry Industry

February 28, 2009

II: Background

This report resulted from an in-depth review of information that was presented and discussed at the National Agricultural Research, Extension, Education, and Economics (NAREEE) Advisory Board meeting held in November, 2008, in Washington, DC. The Poultry Work Group of the (NAREEE) Advisory Board surveyed organizations to identify the current major research needs of the poultry industry and the higher education/research community. Organizations that were surveyed include: the National Chicken Council, United Egg Producers, USDA's Agricultural Research Service and the Poultry Science Association. The latter group includes the academic community serving the industry.

The United States leads the world in poultry production. Last year the U.S. produced 23.5 percent of the world's meat type (broiler) chickens, 52.0 percent of turkey meat and 7.9 percent of table eggs. Americans buy more chicken than any other meat -- 86.3 pounds per capita in 2008 -- and consume 18 pounds of turkey and 250 eggs per person on an annual basis. Control of poultry diseases has been fundamental to the industry's growth and success. Most of the research in this area has been conducted at federal laboratories and at U.S. Land-grant colleges and universities and other federally aided institutions, which have also conducted research and produced innovations in many other areas of critical importance to the poultry industry. Likewise, well-trained graduates of Poultry Science programs and other agricultural disciplines have been vital in providing expertise and leadership to help the U.S. poultry industry achieve and maintain its global leadership position.

Unfortunately, poultry research funding has eroded over the years, compared to funding for other species. Dr. Robert L. Taylor, Jr. of the University of New Hampshire, has demonstrated that poultry was the only animal agriculture commodity that lost ground when 1966 research dollars were adjusted for inflation, carried forward, and compared to 2006 research funding. This decrease in funding has reduced the critical mass of research scientists and research institutions specializing in poultry to alarmingly small numbers.

Congress and the USDA can play a vital role in the continued growth of the poultry industry through wise investments in research, education and extension. What follows are our recommendations for investments in specific areas that are best positioned to contribute to the growth and development of the United States poultry sector.

III. Recommendations

A. *Biocontainment Laboratory and Consolidated Poultry Research Facility in Athens, Georgia*

Highly pathogenic avian influenza (HPAI) and Newcastle disease (ND) are devastating diseases that have caused huge losses in the USA. The H5N1 HPAI virus that is circulating in Asia and Africa, which has resulted in death or depopulation of over 260 million poultry, and 408 human cases with 252 deaths, has not occurred in the Western Hemisphere but is considered a long-term threat. In addition to the impact of these diseases on animals, avian influenza is considered to be a potential basis for a pandemic of human influenza.

Scientists in the United States have been in the forefront of research and development on the causes, prevention and management of these and other avian diseases. A critical asset is the high biocontainment facility at USDA's Southeast Poultry Research Laboratory (SEPRL) in Athens, Georgia. However, the labs at SEPRL were constructed in 1976 and are inadequate to meet the research demands for HPAI and ND. Replacement facilities are urgently needed.

In view of the fact that Highly Pathogenic avian influenza is still a potential threat, not only to the poultry industry, but the human population as well, it is recommended that funding be made available and construction of replacement facilities for SEPRL should proceed immediately.

B. *Meeting Industry Workforce Needs*

The industry's need for well-trained personnel continues to grow. We estimate that, each year, the industry requires more than 225 persons with an equivalent of B.S. Poultry Science training for positions in processing, quality control, live production, sales, marketing, feed manufacturing, animal welfare, waste management, human resources, and product development. Yet, fewer than 100 students are graduated and only six universities have stand-alone Poultry Science programs. Some Universities do offer Animal Science with an area of emphasis in Poultry Science.

The industry has expressed a desire for graduates trained in interpersonal skills, communications (written and verbal), business, economics, conflict resolution, computer skills, real world internship experiences, and international issues, in addition to traditional poultry related courses.

Innovative ways should be found to support those universities that still offer Poultry Science majors and to encourage and support those programs that offer majors in Animal Science with an area of interest in Poultry Science. We recommend that those programs respond to industry needs and expand educational offerings beyond production. An example of an innovative program is the funding for Centers for Excellence included in The Food, Conservation, and Energy Act of 2008. We also recommend initiatives to encourage students to enter the poultry field. Such initiatives could include the creation

of a national Website and career development materials that would be available to all institutions.

C. Federal Support for Critical Research Needs

Scientific research at the USDA Agricultural Research Service, land-grant colleges and universities, and other institutions has been essential to the success of the poultry industry. Federal support should focus on these critical needs:

1. Poultry Health, Disease Prevention and Control, including:
 - a. Infectious Laryngotracheitis, which should be considered the top priority due to the threat it poses to the industry.
 - b. Emerging pathogens in eggs; transmission of potentially pathogenic bacteria to laying hens, and from hens to eggs.
 - c. Enhancement of immunity through nutrition; improved vaccines; biosecurity.
 - d. Interventions to reduce *Salmonella* and *Campylobacter* in live animals, improving pre-harvest food safety.
2. Poultry Reproduction, Genetics, Nutrition and Metabolism
 - a. Research is needed for increased egg production in broiler breeders, turkey, and laying hens; understanding of sex determination; enhanced fertility; and more effective and efficient incubation.
 - b. Research in poultry genetics to yield improvements in disease resistance and production characteristics, among other traits.
 - c. Research in nutrition and metabolism to allow decreased feed costs, use of alternative feed ingredients, increased feed efficiency, and reduced excretion of nitrogen and phosphorus.
3. Poultry Management, Housing and Husbandry
 - a. Investigate ways to improve energy efficiency of poultry housing.
 - b. Improve animal welfare and comfort.
4. Poultry Processing
 - a. Seek innovations in processing to improve food safety and support modernized regulations and inspection systems.
 - b. Investigate ways to conserve and reuse water and reduce environmental impact of processing operations.
 - c. Improve operating efficiencies and reduce labor requirements.
5. Environmental Impact & Sustainability

- a. Examine sustainability of alternative production system for layers as compared to traditional cage systems.
 - b. Investigate ways to reduce inputs and carbon and nitrogen footprints in poultry production.
 - c. Explore more effective litter and waste management, treatment, and utilization at farm and plant levels.
6. Food Safety & Human Health
- a. Support research on *Salmonella enteritidis* (S.e.) and other *Salmonella* serotypes to further improve food safety of eggs and prevent emergence of future concerns.
 - b. Build on research showing the positive impact of egg nutrients on human health and to demonstrate the importance of egg nutrients as compared to traditional concerns about fat and cholesterol.

IV. Conclusion

Federally supported research, education and extension activities have been critical to the growth and success of the poultry industry and all its sectors. The program outlined above would ensure that the poultry industry will continue to have a sound scientific basis and assist the industry in fulfilling its mission of offering nutritious, economical and high-quality food to consumers in the United States and around the world.

NAREEE Advisory Board Poultry Work Group

George Watts (Chair)

Nancy Cox

Robin Douthitt

Alton Thompson