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Dale Bumpers College of Agricultural, Food, and Life Sciences (University of Arkansas, Fayetteville). Center of Excellence for Poultry Science

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Center of Excellence for Poultry Science University of Arkansas Division of Agriculture

Fall-Winter 1995-96

Poultry Center Dedicated

The hundreds of individuals, companies and organizations involved in the continuing development of the Center of Excellence for Poultry Science were represented by approximately 1,000 participants in the September 10 dedication ceremony.

The ceremony included a called meeting of the UA Board of Trustees who voted to name the Center's main building in honor of poultry industry pioneer John W. Tyson, founder of Tyson Foods, now the world's largest poultry company.

A common theme for the speakers was the partnership of the poultry industry, allied industries, federal and state government, and the University of Arkansas working toward a common goal. Twenty million dollars in construction funds for the Tyson Building and a pilot processing plant included \$10 million in federal matching funds shepherded through Congress by Sen. Dale Bumpers, \$5 million from a state bond issue and \$5 million from poultry companies and Arkansas utility companies.

A continuing Allied Industries Capital Campaign has raised more than \$1.4 million to help equip the Center's research laboratories.

The park-like landscaping for the Center will feature several varieties of maple trees and will be designated the Maple Hill Collection of the UA Campus Arboretum. The landscaping is a cooperative effort by the U of A, the Arkansas Poultry Federation and Tyson Foods, Inc.

The Department of Poultry Science is the nucleus of the center, with 19 faculty members who teach and conduct research and extension programs in fields such as poultry diseases, physiology, production

systems, genetics, nutrition, processing, food safety and public policy.

The Poultry Production and Product Safety Research Unit of the USDA Agricultural Research Service is based in the Tyson Building. Center projects also involve faculty from throughout the Fayetteville campus, from the Medical Science campus in Little Rock and other agencies.

The five-story John W. Tyson Building, which has 130,000 square feet if the "mechanical penthouse" for air handling systems on the top floor is included, was designed by Witsell, Evans and Rasco in association with Stone, Marraccini and Patterson. Construction was by Nabholz Construction Corporation.

The building's main components are a lab wing, atrium and office wing. The lab wing has 100 laboratory modules, environmental chambers, walk-in freezers and coolers, teaching labs and a computer lab, a kitchen and tasting booths for sensory evaluation, and other research support facilities. The office wing has space for 35 faculty offices plus spaces for support staff and graduate students. The wings connect through the atrium, which includes the Pioneer Room with plaques depicting poultry pioneers, a conference room, a resource room and lounge area. The atrium opens into the 172-seat Leland Tollett Auditorium.

Research: Basic or Applied Vs. Mission Oriented

Dr. James Denton

Director, Center of Excellence for Poultry Science

The goal for the Center of Excellence for Poultry Science (CEPS) is to build the most effective mission oriented research program possible through the successful integration of basic and applied research. The appropriate balance between basic and applied research relative to poultry science has been a topic of concern and considerable discussion for a number of years. Multiple factors have contributed to the controversy regarding what constitutes the appropriate balance, however, it is important to frame these discussions in the context of at least three fundamental situations which are relevant to an understanding of these issues.

The key is that we must remain focused on the mission of our program, which is to provide the technical support necessary for the long term success of the poultry segment of the food industry. In order to achieve this mission, we must be prepared to bring to bear the most effective scientific methods we have at our disposal to answer the complex questions facing our industry, both today and in the future, regardless of whether the research is considered applied or basic.

The first of the three factors mentioned above is that the success of the poultry industry is due in large part to the industry's aggressive adoption of new technology which has been developed and demonstrated through applied research. This is often referred to as problem solving research. Our industry in general has been very supportive of this type of applied research because of the very direct economic benefit which is associated with this type of research and the immediate payback of the

funding invested. Our industry in general has traditionally been less willing to support basic research programs because of the greater risk of not being successful and there is no short term reward.

Secondly, the administration of land-grant university research programs has placed a higher priority on the research scientist's ability to generate external financial support from grants and contracts, a situation which has occurred simultaneously with the industry's move to strengthening it's support of the applied research effort. Because of the industry's willingness to support applied research, many scientists have developed very strong applied programs and have only minimal efforts in basic research areas. This situation has resulted in the research program in most poultry science departments becoming skewed to the applied program at the expense of the basic program.

Finally, the resources available from the traditional competitive funding sources such as the National Institutes of Health, National Science Foundation and USDA are being reduced as well as being shifted away from agriculture to more support of human related research. These changes are happening concurrently with the situations which are developing in the industry and the land-grant university with regard to research. The reality in these developments is that current and future basic research needs will more certainly become the responsibility of the associated industry, whether the support comes from grants and contracts or through state level funding. The research support for our program obtained through state level funding has been very effective thus far and makes the balance of our distribution between basic and applied resources even more critical to ensure the long term success of the CEPS program and the poultry industry.

The mission oriented program of the CEPS must be developed with the focus on maintaining the delicate balance between basic and applied research. Mission oriented research is a more accurate description of our research program rather than either basic or applied. Our goal is to incorporate the most current technology and scientific methods, regardless of the level of complexity, in meeting the objectives of the research program. The situation in which most of our scientists currently work requires a greater understanding of the fundamental mechanisms involved at the cellular and molecular level, which tends to be more basic. The basic understanding of these mechanisms provides the information necessary to sustain the applied research program. Successful integration of these two types of research will result in the attainment of the goal which we all have for the CEPS: the best poultry research program in the world.

More Allied Companies Join Campaign to Equip Poultry Center Laboratories

Nearly 50 companies that supply goods and services to the poultry industry have contributed to the Allied Industries Capital Campaign to provide scientific research equipment for the new Center of Excellence for Poultry Science laboratories.

Recent contributions pledged, which bring the total as of November 30 to more than \$1.4 million, include:

- Riceland Foods, Inc., Stuttgart, \$100,000

- International Paper, Purchase, N.Y., \$100,000
- Zero Mountain, Fort Smith, \$10,000
- Brooks Grease Service, Inc., Tulsa, \$5,000
- Sunray Services, Inc., Springdale, \$1,000
- Universal Sanitation Inc., Atlanta, \$1,000

These and other outstanding Allied Industry partners are playing an essential role in developing the research-based new technologies and the well-educated future leaders needed to support continued growth of the poultry industry.

Book Chronicles Rise of Poultry Industry

The growth of the Arkansas poultry industry from backyard flocks into a multi-billion-dollar industry is chronicled in "From Hills and Hollers: Rise of the Poultry Industry in Arkansas," by Stephen F. Strausberg, University of Arkansas associate professor of history.

The 182-page hardcover book, published by the UA Agricultural Experiment Station, has 156 photographs, a bibliography, an index and two appendixes.

Strausberg puts names and faces with the interesting facts and amazing numbers associated with the state's poultry industry, starting with a Springdale News item about Willard Berry buying an incubator in 1893 for raising chickens "on an extensive scale."

One of the first Arkansas farmers to use superior breeding stock to raise broilers was J.J. Glover of Cave Springs. Strausberg reports that "In 1916 his daughter Edith raised 20 broilers that Glover sold for \$1 a bird." Glover marketed his chickens as the "Arkansas Broiler" and the name stuck to other meat chickens raised in Benton and neighboring counties who followed his example.

In 1951 the University of Arkansas hosted the National Chicken of Tomorrow Contest sponsored by the A&P grocery chain to promote development of improved broiler breeding stock. United States Vice President Alben Barkley presided at the awards ceremony attended by 8,000 in Razorback Stadium.

The Chicken of Tomorrow contest led to improved facilities for UA poultry scientists and creation of the Arkansas Poultry Federation.

Arkansas produced 1.078 billion broilers in 1994 with a farm-gate value of some \$1.82 billion. The poultry industry's economic impact in the state includes about 90,000 jobs and an annual payroll of about \$2 billion.

To receive a copy of "From Hills and Hollers: Rise of the Poultry Industry in Arkansas," send a check or money order for \$4 per book for postage and handling, payable to Communication Services, 110 Agriculture Building, University of Arkansas, Fayetteville, AR 72701.

Hubbard Scholarship

Vaughn King, Hubbard Farms Regional Manager recently presented the \$3,000 Hubbard Farms Foundation Scholarship to poultry science major Tammie Conway and CEPS Director James Denton. The scholarship is for a student with a grade point average in the top 10 percent of poultry science majors who demonstrates outstanding leadership qualities. Conway, a Beebe High School graduate, is the daughter of Emmett and Maymie Parker of Beebe. She, her husband, Mike Conway, and their three children live at Prairie Grove.

APF Meetings Focus on Nutrition, Processing

Poultry Science faculty members participated in the annual Nutrition Conference in September and Processors Workshop in November, conducted by the Feed Manufacturers Association and Processors Committee of the Arkansas Poultry Federation.

Both meetings, which were co-sponsored by the U of A, were held at the Clarion Inn in Fayetteville.

Feed Manufacturers Association president Mike Hellwig presided at the Nutrition Conference, which followed a technical symposium sponsored by Elanco Animal Health.

Two papers were presented by USDA-ARS Poultry Production and Product Safety Research Unit scientists. Geraldine Bayyari presented results of research on Turkey Green-liver Osteomyelitis Complex and Philip Moore presented research results that support a recommendation for Reducing Ammonia Volatilization from Poultry Litter with Aluminum Sulfate.

Papers presented by poultry science faculty were on Nutritional and Physiological Contributions to Enlargement and Dilation of the Proventriculus in Broilers by R.F. Wideman; Organization and Capabilities of the Analytical Laboratory at the Center of Excellence for Poultry Science, David Barnes; and Nutrition of Broilers During the Finisher/Withdrawal Period, Park Waldroup.

The Processors Workshop, coordinated by Deana Carroll of Peterson Farms, Decatur, included a tour of the Center for Excellence for Poultry Science and a presentation on Antimicrobial Treatments in Poultry Processing by Amy Waldroup.

The program included presentations on "reinventing" the USDA Food Safety Inspection Service, by Chuck Glotfelty, FSIS regional director; Bridging the Culture Gap with immigrant workers, by Barbara Berry, Tyson Foods; Marketing Trends, Mike Hudson, Hudson Foods; Top Management View, Mike Harrison, ConAgra Frozen Foods; Advances in First Stage Processing, Jeff McLendon, Nu-Tech Stork Gamco, Inc., and Self-Directed Work Teams, Linda Honold, Empowerment Systems.

Faculty Profile: Amy Waldroup

Amy Waldroup developed an interest in chickens at an early age on her grandparents' farm at Poth, Texas. Grandpa Boysen was fond of relating that his chickens wouldn't lay for a week after Amy Lynn had visited because she would chase them all over the farm while yelling at the top of her lungs.

In fourth grade her class incubated eggs, only one of which hatched, and Amy got to take the chick home. Mortimer the hen lived in the family's backyard in San Antonio for over five years, and "she laid fairly regularly," Dr. Waldroup recalled recently.

Dr. Waldroup has three degrees from Texas A&M University, a B.S. in poultry science and an M.S. and Ph.D. (1986) in Food Science and Technology. Her graduate chairman was R. Fred Gardner, and James Denton served on both of her graduate committees. Her master's research project was on the effects of age of hen and season of the year on internal and external egg quality attributes. Her Ph.D. dissertation related to the effects of processing methods on the level of contamination by the human pathogen *Campylobacter*.

Since joining the U of A poultry science faculty in early 1987, Dr. Waldroup's research has been in microbiology and food safety. She has evaluated the effects of chemical additives and processing procedures on the incidence and levels of *Salmonella* and other pathogens on processed poultry. Her laboratory has been involved with the research and approval of two new technologies for poultry processors. One involves the use of ozone for recycling of poultry chill water, and the other involves the use of chlorine dioxide for chemical treatment of poultry carcasses during immersion chilling.

She has published over 60 journal articles, 25 magazine articles, 100 abstracts, one book chapter and one patent. She was awarded the 3M Corporation Outstanding Research Award in 1990. She was promoted to professor in 1995 and received the 1995 Continental Grain Company Poultry Products Research Award at the annual Poultry Science Association Meeting.

Dr. Waldroup recently accepted a 20% Extension appointment with a project sponsored by the Department of Higher Education on food safety training of childcare providers. She team teaches Poultry and Egg Technology (POSC 4314) each fall and will participate this spring in an Agricultural Issues class taught by faculty from a variety of disciplines.

Amy and Park Waldroup, University Professor of poultry science, have two children, ages five and six, two Arabian mares and one small pony, which Amy says are even more fun than chickens.

Faculty Notes

Gisela Erf was chair of the 1995 meeting of the contributing project leaders of the USDA Northeast Regional Project on the Genetic Basis for Resistance and Immunity to Avian Diseases at the University of California, Davis, in October.

Dr. Erf was named associate editor of the Poultry Science journal's Immunology Section, and she is ad-p;

hoc member of the National Institute of Health, Immunology Virology and Pathology study section for academic research enhancement awards.

David Chapman was an invited speaker at a veterinarians symposium on Marco Island, Fla., organized by A.L. Pharma, Inc. in October.

Grants Awarded

David Chapman. \$57,200 awarded by Pfizer for studies of the effects of anticoccidial drugs in chickens. \$20,000 awarded by Pfizer for studies of the efficacy of coccidiosis control programs in turkeys. \$5,000 awarded by Hoechst Celanese for studies of immunity development in broilers.

A. L. Waldroup. \$3,500 awarded by Rio Linda Chemical Co. for poultry microbiology research support. \$3,300 awarded by LiquiTech, Inc., to support poultry microbiology research.

Gisela Erf and Walter Bottje. \$23,386 awarded by the Arkansas Science and Technology Authority for research on the effect of Vitamin E on Immune System and Pulmonary Hypertension Syndrome in Broilers.

Walter Bottje. \$23,386 awarded by the Arkansas Science and Technology Authority for research on interorgan circulation in broilers.

N.B. Anthony. \$49,581 awarded by the USDA for a study of the genetic relationships between actual and predicted carcass characteristics in broilers.

Park Waldroup. \$25,000 awarded by ConAgra Frozen Foods for research & development in the field of nutrition and management of large broiler males. \$3,500 awarded by Peyton Creek Minerals for poultry nutrition research.

John Kirby. \$163,000 awarded by the USDA/NRICGP for research on increasing testis size and sperm production in fowl.

Alumni Association Honors Waldroup

Park Waldroup received the Arkansas Alumni Association's Distinguished Faculty Achievement Award for Research, presented Oct. 6 as part of Homecoming festivities.

Dr. Waldroup teaches courses in nutrition for poultry and other animals. He is internationally known for his poultry nutrition research, which plays a major role in the development and improvement of an integrated nutrition program for poultry.

He joined the UA faculty in 1966 and was appointed University Professor in 1987. The most recent of

his many other awards include the Distinguished Nutritionist Award from the Distillers Feed Research Council, the American Soybean Association Market Development Award, the John W. White Research Award, and the National Broiler Council Research Award.

UA Has Top Judging Team

The University of Arkansas Poultry Judging Team won first place in the 1995 National Collegiate Poultry Judging Contest held in Fayetteville the first week in November. Team members are (left to right) Tammie Conway, Robert Moore (coach), Erin Johnson, Matt Drewyor and Peyton Weaver. Drewyor was top high individual. Conway had the highest score in the production category and was second high individual. Weaver was tenth high individual, and Johnson was thirteenth high individual.

The second through fifth place teams were Mississippi State, North Carolina State, Louisiana State and Texas A&M. Other teams were from University of West Virginia, Crowder College, Oklahoma State, University of Wisconsin at River Falls and Kansas State.

The awards banquet, trophies and prizes were provided by the Poultry Improvement Committee of the Arkansas Poultry Federation.

Poultry Science Club Activities

Poultry Science Club members helped conduct the 4-H Broiler Show at the 1995 Arkansas State Fair in Little Rock.

Poultry Science scholarship recipients, who were listed in the last "PARTNERS," helped staff the Allied Industry Chicken Kitchen booth that raises a large percentage of the scholarship funds each year.

CEPS Hosts Industry Groups

The Leland Tollett Auditorium and other facilities in the John W. Tyson Building are being used by a variety of Allied Industry groups.

The Center recently hosted The Arkansas Bankers Annual Agricultural Conference attended by approximately 40 bankers from throughout Arkansas.

A Jamesway Incubator Hatchery Shortcourse was conducted with 165 participants from 22 different countries. The three-day course included hands-on lab time as well as expert instruction.

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