25 Retrospective profile of California’s Emu Industry: A survey. B.A. McCrea* and F.A. Bradley, University of California, Animal Science Department, Davis, CA 95616.

A survey was conducted of California emu producers. Two industry organizations, the United Ratite Cooperative (URC) and the California Emu Association (CALEA) provided the names of 62 producers. A survey was developed to assess each producer’s status. Information obtained included current bird numbers, changes in flock size, perceived problems, and current level of motivation. The survey was completed by 47 producers. Average flock size was reported to be 42 birds. Producers reported decreasing their bird number starting in 1998-99. Slightly less than one-third of the producers (31.9%) were still positive about marketing emu as a commodity. Many (38.3%), expressed hesitancy towards increasing their production unless the market improved. Other producers were hesitant based on the following concerns: processing costs (8.5%), distance to processing plant (4.3%), wasting interest in raising emus (10.6%), and other incidental issues (6.4%). The statewide decline in industry interest and bird numbers is mirrored in the history of the URC. The URC was established in 1995 with less than 20 members. To obtain operating funds, charter members were charged a fee of $1,200. Within one year the cooperative had 207 members. This was also URC’s membership peak. Initiate fees were raised in 1996 to $1500. Continuing need for capital resulted in the initial fee being increased to $2000 and the creation of a membership $500 ranch assessment. These fee changes were initiated in January of 1997. This additional cost coupled with the saturation of the breeder market, heralded the decline in member numbers and participation in the cooperative. Within one month membership had fallen to 106 producers. As these remaining producers attempted to shift from selling breeder stock to selling oil, meat, and other by-products, the cooperative membership declined. The majority of producers have assumed a wait-and-see attitude. While associations and cooperatives are meant to aid producers, the economic changes in this industry have proven difficult for producers and organizations alike.

Key Words: Emu, Ratite associations

26 Influences of state and federal inspection practices on regional emu production. N.H. Elsalawy* and F.A. Bradley, University of California, Animal Science Department, Davis, CA 95616.

In 1999, the County of El Dorado (CA) commissioned a feasibility study concerning the construction of an emu processing facility. The county wanted guidance in terms of promotion of such a plant, the economics of the project relative to the county’s emu producers, and the potential benefits to the local population. Both the producers and processors were surveyed. The producer listing was generated from the membership lists of the United Ratite Cooperative and the California Emu Association. National ratite associations, such as the American Emu Association, were used for generation of the processing list. Fifteen processors in 13 states were surveyed. Of these, 11 were currently processing emus and were open to the public. With respect to state versus federal inspection, the services utilized were 45.5% and 54.5%, respectively. All but one of the plants processed a variety of animals. To become exclusive processors of emus, the required monthly volume was estimated to be 218 and 367 birds for the state and federal plants, respectively. The number of full time employees was 3.7 for state and 10.4 for federal plants. The most notable difference between plant types was that the federally-inspected facilities charged considerably more ($73.60 versus $52.00) to process each emu than state-inspected facilities. Since USDA inspection of emus is not mandatory, federal facilities must pay a $37.00 hourly inspection fee. This cost is added to the normal processing charges, greatly increasing processing expenses. El Dorado producers currently haul their birds between 200 and 500 miles to federal facilities. The absence of a convenient processor is an impediment for El Dorado County producers, as emu meat must be federally inspected to move freely across all state borders. The survey results clarified the critical issues surrounding processing and the differences between inspection services. The report provided to the County of El Dorado supported the local producers’ need for a local, federally inspected processing facility. However, prior to construction, a market must be established that demands a significant amount of product on a regular basis.

Key Words: Emu, Processing, Ratites

27 Active learning in a poultry products technology course. T. J. Buttiles*1 and B. S. Walters*, 1 University of Minnesota, St. Paul, MN, 2 University of Wisconsin - River Falls, River Falls, WI.

Active learning can be defined as any instructional strategy where students take an active role in their own learning. The use of active learning in a diverse range of college courses has shown that it can increase student problem solving ability, increase student interest in the course material, and connect with a more diverse group of learners while providing the same level of content mastery compared to traditional lectures. The poultry products technology course was included as part of the Undergraduate Poultry Science Center of Excellence summer program sponsored by the Midwest Poultry Consortium. The 3 semester credit, 500 level course, was condensed into 2 weeks. Each day the students spent 3 hours in the morning in classroom instruction and 3 hours in the afternoon in lab. The instructors utilized active learning methods to provide a change of pace during the lecture period, to address the range of student learning styles, and to increase student problem solving skills. Labs, field trips, and an industry workshop, commonly found in this type of course, provided real world application of course material. Following each activity students completed written assignments involving connection to course content and personal experience. Additional active learning methods included group presentations, an Internet based food safety activity, and an out of class poultry product price and label search in a grocery store. All of these activities were designed to be active, participative, and student centered. The inclusion of these active learning strategies did accomplish the goals of providing variation during class periods, reach students with a variety of learning styles, and provide practice in applying knowledge to solve problems.

Key Words: Instruction, Active learning, Teaching, Poultry products, Midwest Poultry Consortium

28 Strategies for bringing poultry to prominence in an animal science curriculum. J.D. Firman*1, 1 University of Missouri.

After merger of poultry programs into animal science departments, we have typically seen students involved in poultry coursework decrease dramatically. In many cases courses have not had sufficient enrollment to be taught for many years. While Missouri is a typical red meat state (#2 cow-calf) with only 2 faculty in poultry, poultry production is now the largest of our 6 production courses with 53 students enrolled in the 9900 school year. A strategic approach to improving enrollment was taken in which curriculum revision resulted in poultry sections being added in freshman and sophomore courses as well as emphasis in junior courses. The two senior courses (nutrition, production) as well as the previous courses are all taught by the same faculty member resulting in renewed interest in poultry. A systematic approach to improving enrollment will be discussed.

Key Words: Education, Animal Science Curriculum, Production

29 Departmental merger - a new paradigm?. G. Birrenkott*, M.A. Hall, D.V. Maurice, T. Scott, P. Skewes, R. Thurston, and J. Whitesides, Clemson University, Clemson, SC.

Popular legend has held that the elimination of an independent Poultry Science department signals the end, or beginning of the end, to service, teaching and research in the avian sciences for the benefit of a state’s producers, consumers and students. In 1997 Clemson University’s Poultry Science and Animal, Dairy and Veterinary Science departments were merged into a single unit. This was consistent with other changes in academic structure within the College of Agriculture, Forestry and Life Sciences. A by-laws committee containing equal faculty representation from both departments solicited input from faculty, staff and students as they worked for several months on the name, mission, vision, and committee structures of the new department. The Poultry Science faculty have made valuable contributions to the new Animal and Veterinary Sciences (AVS) department in all areas: research, teaching and public service. We have revised all of the curricular options in the department and kept one for Poultry Business. In our introductory AVS course, we have increased the credit hours and incorporated poultry subject matter. We now allow students to substitute poultry science courses for other animal science offerings. Coupled with our advising AVS students from all curriculum
options, we are now educating several hundred more undergraduate students in poultry and poultry related topics than we had with the old department structure. This has expanded the number of students interested in coursework, internships and careers in poultry science. Faculty interest in teaching a diverse and challenging undergraduate population has increased. Our students appreciate a rigorous curriculum that encompasses all food animals and animal disciplines. While the verdict is still out on the long-term impact of this merger, the short-term effect has either been positive or at worst not detrimental.

Key Words: Department merger, Instruction, Curriculum, Administration


A class project was conducted to provide Animal and Poultry Science students at Tuskegee University to develop a basic background in genomics using an experiential learning approach. The project, conducted over a five-week period, was to characterize the recently described chicken cyclin D1 gene. The cyclin D1 gene is important in maintaining cartilage integrity in eukaryotic systems. Mutations in this gene have been shown to cause skeletal disorders in the mouse. To begin to characterize its role in cartilage integrity in chickens, we initiated this project to catalogue mutations in the chicken cyclin D1 gene. The identification of these mutations lays the foundation that may be essential in determining the effect of cyclin D1 on chondrocyte morphology in chicken. The analysis was based on DNA templates obtained from village chickens of Puerto Rico, which unlike commercial chickens, are not selected and therefore provide a unique opportunity to identify cryptic nucleotide variants. Blood was obtained from a total of 50 birds and was each used for DNA isolation by standard methods. Primers used in the polymerase chain reaction (PCR) were specific for the chicken cyclin D1 sequence in GenBank. The PCR-amplified fragments were sequenced using fluorescent-based methods and analyzed for variants Bioinformatics tools Phred/Phrap and Polyphred. The average size of the sequences was 220 bp all of which showed about 95% sequence identity to GenBank Gallus gallus sequence with Accession Number U40844. Two single nucleotide variants (SNP) were identified, one of which was within the coding sequence. The SNPs represent a resource that can be used to associate the portion of the cyclin D1 gene that is essential for maintaining cartilage integrity. The project provided the Animal and Poultry Science 0521 Class an opportunity to develop a hands-on experience with genomics as well as Bioinformatics, both of which are central tools now in the biomedical and agricultural sciences.

Key Words: Experiential learning, Genomics, Poultry class

31 A Study on the Degree of Permeability and Leaching of Nitrogen, Phosphorus, and Potassium in Soils Within Turkey Barns. K.W. Koelkebeck1, S. Nally2, and F.W. Simmons3, 1University of Illinois, Urbana, IL USA, 2Perdue Farms, Inc., Washington, IN USA.

A field study was conducted to determine the degree of permeability and leaching of nitrogen, phosphorus, and potassium in soils from earthen floors within several turkey barns. Two turkey grow out barns and one brooder barn were selected from three commercial turkey farms in Southeastern Illinois to be sampled for the presence of soil nutrients and permeability properties at specific depths. For each barn, nine 5 ft. soil borings were taken from the inside and three 5 ft. borers were taken from the outside. The soil borers were divided into five 1-ft. sections representing the top 5 ft. of depth and analyzed for total Kjeldahl nitrogen (TKN), nitrate nitrogen (NO3-N), total phosphorus (P2), potassium (K), pH, and percent organic matter (OM). In addition, 15 core samples (3” deep x 3” diameter cylindrical cores) were taken from each barn to determine soil permeability. Three core samples at three depths (1-3”, 5-7”, 9-11”) were taken from the inside and two samples at the same three depths from the outside of each barn. The results indicated that greater (P > 0.05) between inside and outside samples for depths 2-5 ft. Lower soil permeability values were found for the inside vs outside samples at the 1-3”, 5-7”, and 7-11” for all farms averaged together. Thus, the present study indicated that even though some soil nutrients leached below the surface of the ground inside a turkey barn, leaching essentially stopped at the 4 to 5 ft. depth. In addition, the degree of soil permeability may be lowered by the presence of raising turkeys inside turkey barns.

Key Words: Soil Nitrogen, Soil Phosphorus, Soil Potassium, Soil Permeability, Turkeys

32 Environmental Stewardship training for poultry producers. A.J. Pescatore1, K. Knoblett2, M. Straw3, and I. Linville, 1University of Kentucky, 2Kentucky Poultry Federation, 3Kentucky Department of Agriculture.

The state of Kentucky requires that all landowners of ten or more acres who are involved in agriculture develop and implement an Agriculture Water Quality Plan by October 1, 2001. The Agriculture Water Quality Plan involves the use of best management plans (BMP) to address water quality concerns on individual farms. There have been two new BMPs included in the plan that specifically addresses poultry. In order to educate poultry producers on these new BMPs and to stimulate producers to complete their plans an environmental stewardship training program was developed. The environmental stewardship program is a cooperative effort between the University of Kentucky, the Kentucky Poultry Federation and the Kentucky Department of Agriculture. In addition, poultry company personnel, county extension staff and Natural Resources Conservation Service personnel participated. The objectives of this program are 1) To provide poultry producers with the information necessary for developing a water quality plan, 2) To discuss the principles of environmental stewardship and how nutrients effect the environment, and 3) To provide information on developing a good neighbor policy and a positive image for the poultry farms. The program is conducted over 4.5 hours which includes presentations, a meal and individual workshop time for the completion of the water quality plans. Twenty-one programs have been conducted with over 500 participants. An evaluation of the program was conducted. Of the respondents 85 percent had a more positive opinion on the need for water quality plans. Poultry producers indicated that within the next year 84 percent would implement additional best management practices into their operation. A survey of the poultry industry indicated that 80 percent of the poultry producers have completed their Agriculture Water Quality Plan.

Key Words: Environment, Training Program, Water Quality

33 The value of a poultry house clean out operator database. G.W. Malone1 and N.E. Astle, Jr., 1University of Delaware, Georgetown, DE/USA, 2Maryland Department of Agriculture, Annapolis, MD/USA.

Commercial operators that perform cake removal and whole house clean out of litter serve a vital role in the poultry industry. To identify who offers these services on the Delmarva Peninsula, with the assistance of various segments of the poultry industry, a listing of clean out operators was compiled. Each operator was contacted to determine the nature of their business and the types of services they offered. Only those operators serving more than 10 poultry houses were included in the database. The 65 commercial operators identified in the survey service more than 60% of all poultry houses in the region. This was a part-time business for most (75%) individuals and many (75%) of the operators were poultry growers. Furthermore, 63% of the operators were farmers that used an average 2245 tons of litter per year. Additional information was obtained on services offered, fee schedules, and interest in expanding their business. The database has defined the demographics of clean out operators and greatly enhanced overall communications with this segment of our industry. In addition, the database has provided vital links between the clean out operators and agriculture-related industries and agencies. The database has been valuable in improving communication efforts on biosecurity issues; and has provided key contacts in facilitating litter transport programs, litter matching services, and alternative litter use technologies.

Key Words: Poultry, Clean out operator, Survey, Database