With increasing interest in small and backyard poultry nationwide, there is a need for educational resources targeting this group. According to the 2007 Ag Census there were more than 143,000 farms in the US with laying flocks of less than 20,000 hens and of this, 125,195 had <50. More than 10,000 farms sold <16,000 broilers during the year, with the majority of those farms selling <2,000. In addition, there were 5,500 farms selling <2,000 turkeys each year. For many new farm owners it is their first experience with farming. Many are either beginning farmers or retired professionals who are not from farm backgrounds. Small flock owners turn more frequently to the internet as a source of information but there is a lot of misinformation available online as well. eXtension (www.eXtension.org) is an interactive learning environment delivering research-based knowledge in a timely fashion. eXtension is different from other search engines or information-based websites since it is a place where university content providers can gather and produce new educational and information resources on a wide-range of topics. The website is available to anyone, at any time, from any internet connection allowing eXtension to solve real-life problems in real time. A new Community of Practice (CoP) has been developed to meet the needs of poultry owners with small- to medium-sized production flocks and those with backyard flocks. We have completed 295 glossary terms, 285 FAQs and 126 articles. Each piece of information created is reviewed twice before released to the public site. More material is continually being developed. When you join the eXtension network you bring your unique education, skills and experience to a wide community of interested users. You can collaborate with colleagues and consumers enabling you to reach a larger audience.

Key Words: small flocks, eXtension, backyard flocks

The development of modern microbiology and biotechnology has led to an increasing demand on culture collections for authenticated and reliable biological material. Furthermore, worldwide recognition of the necessity to preserve the microbial genetic information for future studies and exploitation has contributed for de creation of centers of expertise in culture isolation, maintenance, identification and taxonomy. Microbial resource centers are becoming essential elements for the support of scientific development in the food industries, especially the poultry and swine. For that reason the EMBRAPA Swine and Poultry microbial collection (CMISEA) has been created and accredited by the Council for the Management of Genetic Patrimony (CGEN) as a trusted depository institution of microorganisms. CMISEA has capacity for storage and conservation of approximately 12,000 microorganisms and its main goal is to identify, characterize and maintain isolates that are pathogenically important for the poultry and swine industries, and to support research by providing reliable microbial cultures. Microorganisms require special preservation methods to ensure optimal viability, purity and stability. Therefore, a system of storage and maintenance was adopted to improve quality and reliability of the isolates, which includes preservation of isolates by at least 2 different procedures and at least one of them being a long-term storage procedure, such as lyophilization or cryopreservation, to minimize the risks of genetic changes. In addition, when an isolate is held in the collection, it receives a standard code, is cataloged in the database that contains all the information regarding that specific isolate, and 6 subsamples of it are stored. All the storage equipment, such as liquid nitrogen tanks, ultra-freezers, freezers and refrigerators are coded and mapped so subsamples can be easily deposited and located. Currently, the collection holds 491 different microorganisms within 16 different genera and the most representative of them is Pasteurella (26%), followed by Bordetella (23%) and Salmonella (18%).

Key Words: culture collection, pathogens, research, industry, CMISEA

Bloom’s Taxonomy of learning domains classifies learning objectives into 6 categories which include: remembering, understanding, applying, analyzing, evaluating, and creating. While many undergraduate courses focus solely on remembering, understanding, and applying facts and concepts, undergraduate students are often limited in opportunities to develop higher order thinking skills such as analysis, evaluation, and creation through traditional didactic lectures. One teaching method that promotes the development of higher order thinking skills is Problem Based Learning (PBL). In PBL teaching modules, students learn actively by working in groups to make decisions about real-world dilemmas that they must solve. By creating an environment where students are required to act as if they are in a professional setting, they are encouraged to develop analytical problem-solving skills. To assess the impact of PBL teaching methods in the development of higher order thinking skills in Introductory Poultry Science students, 2 Introductory Poultry Science courses were utilized in this educational study. One Introductory Poultry Science course served as the control group where students were taught in a traditional lecture format while the second Introductory Poultry Science course served as the experimental group where students were taught using PBL instruction. Students from each course were tested using identical examinations with questions that were coded as being lower order (remembering, understanding, applying) or higher order (analyzing, evaluating, and creating). Differences in student performance between the traditional versus PBL Introductory Poultry Science Courses were assessed to determine if teaching with PBL improved performance on higher order questions. Students taught with PBL showed up to 15% improvement on higher order problem based questions. This study supports the use of PBL teaching methods in undergraduate poultry courses to enhance the development of higher order thinking skills.

Key Words: problem-based learning, higher order thinking
P300 Creative inquiry—Undergraduate research on the hen as a model for ovarian adenocarcinoma. G. Birrenkott* and J. Fain, Clemson University, Clemson, SC.

In 2005 Clemson University implemented a plan to encourage and support undergraduate scholarship under the heading of Creative Inquiry. These are learning experiences where small-groups of students interact with faculty, graduate students and staff to explore a specific topic. This teaching model was used to engage undergraduates in the study of spontaneous ovarian adenocarcinoma in the aging laying hen. The hen is the only (spontaneous) experimental model for human ovarian adenocarcinoma because of the number of times that the ovarian surface epithelium is broken at ovulation and heals. A group of undergraduate students in Animal & Veterinary Sciences completed certification programs in zoonotic diseases, medical surveillance and animal care and use before being added to an ongoing Institutional Animal Care and Use Committee Protocol (IACUC) at Clemson University. Students were involved in necropsy of young and old SCWL hens and became familiar with both normal and abnormal ovarian morphology. Students were taught how to perform sonograms on cadavers (transabdominal and transrectal) excised ovaries and both hard-shelled and soft-shelled (SS) eggs. Both color Doppler and grayscale ultrasonography showed clear opacity differences in small-white ovarian follicles and the blastodisc region compared with the large, yellow-yolk follicles in the rapid growth phase of folliculogenesis. These differences in opacity were also noted in the yolk components of SS and broken-out eggs. Hens with ovarian cancer had numerous abdominal masses that appeared on sonograms similar in character to those of the small (white) ovarian follicles but were diffusely located in the abdominal cavity. Creative Inquiry projects are a great way to engage students in learning about avian biology and applying their knowledge base to asking and solving real-world questions. Because Creative Inquiry projects can run for consecutive semesters, these undergraduate group projects can systematically explore large topics by breaking them down into smaller experiments that fit within a single-semester timeframe.

Key Words: undergraduate research, ovarian cancer, ultrasonography, ovarian pathology, laying hen