date, in-plant strategies are the primary means used to achieve pathogen reduction in the supply chain, and these costs are borne almost entirely by the packing sector. As on-farm strategies for pathogen control are explored questions about cost have arisen. Who is going to pay for on farm, in feedlot, in transit, in lairage, or further intervention strategies? These are difficult questions to answer, but will be discussed in this session.

Key Words: Food Safety, Economics

Goat Species: Educational Resources and Field Experiences to Enhance and Promote Goat Production and Management

582 Fitness indicators among Boer, Kiko, and Spanish does managed on pasture in central Tennessee. R. Browning, Jr.*, T. Payton, B. Donnelly, P. Pandya, M. L. Leite-Browning, W. Hendrixson, S. Kebe, and M. Byars, *IAgER-Tennessee State University*, *Nashville*.

Boer (BR; n = 42), Kiko (KK; n = 38), and Spanish (SP; n = 47) straightbred does representing a broad base of within-breed genetic lines were managed together on pasture from September 2003 to August 2004. Three-quarters of each breed were mated in October and the remainder bred in December. Herd health records were analyzed by GLM or χ^2 for the 2003-2004 production year to begin assessing animal fitness under the prevailing production environment. Does were treated for hoof scald and hoof rot upon observed lameness. The herd was not vaccinated for hoof rot. Breeds differed ($P < 0.01$) for lameness cases treated during the year. Boer required more ($P < 0.01$) treatments for lameness (1.77 ± 0.22 cases/doe) than SP (0.60 ± 0.22 cases/doe) or KK (0.47 ± 0.24 cases/doe). A higher ($P < 0.01$) frequency of BR (52.3%) required multiple hoof treatments per year compared with SP (19.2%) or KK (10.5%). Does were dewormed as a group in January (ivermectin) and individually at parturition (moxidectin). Does kidding in March were also dewormed as a group in June (moxidectin). Individual does presenting clinical symptoms of internal parasitism during the year received additional moxidectin treatments. Breeds differed ($P < 0.01$) for extra anthelmintic treatment. Additional dewormings were more numerous for BR (0.53 ± 0.09 cases/doe) than for SP (0.11 ± 0.09 cases/doe) or KK (0.07 ± 0.10 cases/doe). A higher ($P < 0.01$) frequency of BR (40.5%) received extra dewormings during the year compared to SP (6.4%) or KK (2.6%). Fecal egg counts (FEC) were determined on a random subset of does (19 BR, 15 KK, 18 SP) across kidding groups as kids approached 3 mo of age (June and August). Breed affected ($P = 0.04$) log transformed FEC with values higher ($P < 0.04$) for BR than for SP. Geometric mean FEC for BR, KK and SP were 606 ± 19, 307 ± 12, and 237 ± 9 eggs/g, respectively. Lower frequencies ($P < 0.01$) of BR does weaned kids at 3 mo (76%) and survived though the production year (79%) compared with SP (96%, 98%) and KK does (100%, 100%). Preliminary results suggest a difference among meat goat breeds for fitness under southeastern US conditions.

Key Words: Meat Goats, Breeds, Fitness

583 Goat sales and price patterns in West Virginia. D Singh-Knights*[1], D Smith[1], and M Knights[2], [1]*West Virginia University*, *Morgantown*, [2]*The University of the West Indies*, *St. Augustine, Trinidad*.

Sales of goat meat (chevon) in the Northeast US have increased continuously since the early 1980s. The production of goats is therefore a potentially profitable option for full-time and part-time farmers in the Northeast region. However, inadequate year round supply, low and fluctuating prices, as well as inconsistencies in meeting specific consumer preferences are thought to be limiting growth of the industry. The present study was aimed at determining factors affecting regional variations in prices and number of goats sold. Analysis of variance using the Generalized Linear Model (GLM) procedure of SAS (SAS Inst., 1985, NC) was conducted on goat sales transactions for 1999-2003 from auction markets in West Virginia and neighboring markets in Virginia and Pennsylvania. Sales transactions were analyzed to determine the effects of year, month, location, market class (selling weight and body condition) and their interactions on price and number of goats sold. The number of goats sold during 1999-2003 varied with class of goat, month, year and class within months and years (Month, Class, Month X Class, Year, Year X Class, $P < 0.01$). There was a significant interaction between class of goat and month on prices received (Month X Class, $P < 0.01$) probably reflective of shifting consumer preferences throughout the year associated with specific ethnic holidays. Significant increases in sale of goats occurred over the period 1999-2003 driven by increasing prices and possibly increasing demand. It is suggested that the monthly variations in both prices and number of animals sold is probably reflective of both seasonal nature of reproduction and seasonal demands associated with ethnic holidays. The results of this study can be used by individual producers or extension educators to evaluate production and marketing options in an effort to enhance revenue generation by goat producers in West Virginia (WV) and surrounding areas.

Key Words: Goat, Prices, West Virginia

584 Formation of the Missouri Boer Goat Association. E. Walker*[1], S. Hamilton[2], and B. Watts[3], [1]*Southwest Missouri State University*, *Springfield*, [2]*University of Missouri*, *Columbia*, [3]*Missouri Boer Goat Assocation*, *Springfield*.

Over the past 20 years, the ethnic population living in Missouri has increased, which could be indicative of a growing potential market for goat meat. Missouri has a high potential for multiple-use land since pastures consist of a variety of grasses, forages, and browse. Missouri is centrally located in the United States and could provide goat carcasses to Midwestern cities possessing a growing cultural base of potential goat consumers. Missouri, with its diverse land, a growing interest in goat production by producers, and close proximity to several large cities, could prove to be a major goat producing state. Missouri goat producers face challenges that goat producers face nationally including: negative perceptions of other livestock producers, lack of farm supply stores which sell goat-related products, lack of information on goats, and lack of marketing strategies. For these reasons, Boer goat producers in Southwest Missouri came together to form The Missouri Boer Goat Association. While other goat associations do exist within the State, none exist specifically to promote the Boer Breed. The overall goal of the association is help producers with goat production challenges and educate people as to the potential benefits of raising either purebred Boers or raising goats which are Boer influenced. Over 70 people from all over the State attended the first open association meeting. Meetings will occur quarterly and meeting topics will relate to the current or projected needs of the industry. Our next meeting will coincide with a goat show and sale. Congruently, the association will also host a showmanship and selection workshop for 4-H and FFA members. We have also developed a PowerPoint presentation which is available to our members so that they may promote the Boer breed. A website will be hosted by the Missouri Boer Goat Association. The unofficial slogan of the Missouri Boer Goat Association is “Boer: the beef goat of the future”, as that is the image we wish to convey.

Key Words: Missouri, Boer, Goat

585 Using the internet to extend the reach of small ruminant extension programs in Maryland. S. Schoenian* and C. Fritz, *University of Maryland Cooperative Extension*, *Keedysville*.

According to the UCLA Internet Project, 71 percent of Americans used the Internet in 2002. Seventy percent ranked the Internet as their most important

source of information. The 2002 Census of Agriculture showed that 50 percent of farmers have Internet access. The Maryland Small Ruminant Page (sheepandgoat.com) was created in 1998 as an information portal for sheep and goat producers. In addition to containing a comprehensive library of links organized by subject matter, the web site highlights Maryland Extension programs and contains original newsletters, fact sheets, and images. One hundred percent of the respondents to a 2003 online survey (n=35) indicated that they found information on the Maryland Small Ruminant Page that helped them manage their sheep and goat enterprises; 95 percent of respondents credited the web page with saving them money or increasing their profits. The Maryland Sheep & Goat Directory (www.smallfarmsuccess.info/sheepandgoat.cfm) was created in 2003 to help sheep and goat producers sell their breeding and slaughter stock and other products and to help buyers locate the same. Many producers have credited the directory for helping them to make sales. Sheepgoatmarketing.info is being developed as a national resource for sheep and goat marketing. It replaces sheepgoatmarketing.org created by the Northeast Sheep & Goat Marketing program at Cornell University. The new site will maintain its focus on the ethnic/religious markets for sheep and goats. The Maryland Sheep & Goat Directory will be merged with the producer directory of sheepgoatmarketing.info to create a national database of sheep and goat producers. Sheep101.info debuted in 2004 as a user-friendly resource for 4-H and FFA members, students, teachers, and beginning shepherds. The site uses simple language and images to illustrate the various topics and is updated regularly with new information and pages. Information contained on the sheep101 web site has been used by 4-H clubs and in classes for beginning shepherds. These four web sites serve different needs and target audiences, but share a common goal of expanding the reach of the Maryland Small Ruminant Extension Program.

Key Words: Sheep, Goats, Internet

586 Extension and teaching goat production in Mexico. S. Arbiza[1], M. Perez[1], and M. Huerta*[2], [1]*Facultad de Estudios Superiores Cuautitlan, UNAM*, *Cuautitlan Izcalli, Mexico*, [2]*Universidad Autonoma Chapingo*, *Chapingo, Mexico*.

Goat production in Mexico has an important economical, social, and environmental impact; however, there are limitations in teaching, research, and extension efforts. Part of these limitations arise from goat-specific taboos related to their nutitional habits and producer stereotypes. In some Mexican institutions, formal teaching about goats is conducted within a sheep and goat course, while in others it may be taught as an optional course. However, there are some universities from the North and Central regions of Mexico that have specialized faculty with well-designed undergraduate- and graduate-level courses on goats. These programs resulted from faculty training in Mexican and international institutions. Besides teaching, these faculty conduct goat research, and have presented their findings in 18 annual meetings of the Mexican Society of Goat Production. This research has generated information on goat production systems, and nutritional, reproductive, and sanitary management of goats for almost all the regions of Mexico, and comprises the core of the material taught in the goat courses. Practical aspects of goat courses should include milking, feeding, and reproductive management. Advanced courses should include processing of meat and milk products. Successful goat programs should have a good-sized herd, a strong research program, and a continuous training of teachers and researchers. Several extension programs have been implemented in the past, but most of them have failed. Some causes were: 1) lack of research on social, economical, or technological limitations; 2) specific rather than holistic approaches; 3) minimum involvement of goat producers; and 4) training of personal. Nevertheless, the involvement of producers, educational and research institutions, and government agencies will allow the implementation of good extension education programs on goats.

Key Words: Goats, Teaching, Extension

587 University strategies to solve problems in goat production. A. S. Juarez-Reyes and M. A. Cerrillo-Soto*, *Universidad Juarez del Estado de Durango*, *Durango, Dgo, Mexico*.

Arid and semiarid regions in North Mexico are recognized as having important potential for goat production. Nevertheless, several constraints affect the goat industry, mainly nutritional, managerial and animal health. Institutional programs in universities located in North Mexico are currently focusing in developing goat production courses. The aims of these courses are for the students to obtain not only an adequate theoretical knowledge but also to get involved in practical experiences. These practical hands-on situations will provide the students with a unique academic experience by giving them direct exposure to animal production. In this way, the students will have the opportunity to develop skills to deal effectively with the demands of improving meat production and livestock utilization. Under advisory guidance, students will also be responsible for conducting research and retrieving data on various aspects of goat production that ultimately will lead to a thesis to obtain their DVM degree. Working toward a DVM degree and a thesis also enables researchers and students to attend national and international meetings and submit the information to peer reviewed journals. However, concepts relating to goat product fabrication (cheese, candies, meat and skin) and product marketing are not included in the academic program but these ought to be considered. Finally, a permanent evaluation has to be conducted to ensure the quality of goat production courses taught. This evaluation should determine if the knowledge acquired is appropriate to help solving regional necessities.

588 A college-level, team-taught course on small ruminant production: Reflections on the status and trend of the goat and sheep industry in Louisiana and the Gulf Coast region. J. M. Fernandez*, J. E. Miller, B. M. Olcott, T. L. Dumas, P. E. Humes, J. M. Gillespie, K. W. McMillin, and R. A. Godke, *Louisiana State University*, *Baton Rouge*.

Small ruminant production in Louisiana generates approximately $2.6 million (2003). Over the past 25 years, sheep were the predominant small ruminant in Louisiana, primarily supplying the club lamb industry. Interest in the meat goat industry arose early in the 1990s with the importation of Boer goats. Now goat interest and numbers have overtaken sheep! In 1998, there were 724 producers raising 11,300 ewes, and 470 producers raising 6,900 does, whereas the latest figures show 7,460 ewes (and 570 producers) and 12,629 does (and 836 producers). Historically, LSU offered "**Sheep Production**" (ANSC 4086) during alternate Springs as one of four senior-level animal production courses. In the mid-1990s the name was changed to "**Small Ruminant Production**" to better reflect the increased emphasis on goat topics and materials; presently, it is about 50:50. The 3-h credit course consists of lectures and laboratory exercises, and has been taught in traditional and non-traditional (distance education) formats. The labs are held at the LSU Ag Center farms 6 miles from LSU. Each student is required to submit a globalization marketing project. Enrollments have ranged anywhere between 8 to 22 students (1992-2005), and are composed of traditional and non-traditional students, including many county agents. Graduate credit is available. The course is taught in a manner that provides useful, practical lessons that can be readily applied under sheep and goat production conditions common to the state and region. Indeed, the objective of the course — as stated in the catalog description — is to teach, "*the theory and practice of management, breeding, and feeding of sheep and goats for production under southern conditions.*" This is accomplished utilizing a congenial and successful team-teaching effort that employs expertise available from across various disciplines and university units.

Key Words: Goats, Sheep, Teaching