

VETERINARY

FOR THE PRACTICING VETERINARIAN

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New faces in the College of Veterinary Medicine

Dr. Bob L. Larson joined Kansas State in 2006 as the Coleman chair of food animal production medicine. Raised in



Dr. Bob Larson

He resumed private practice and worked primarily with cow-calf producers, backgrounding/stocker operations and farmer-feeders first in Carthage, Ill. and later, Abilene, Kan.

northeast Kansas, he received bachelor's and D.V.M degrees from K-State. After one year in mixed practiced in south-east Kansas, he returned for a Ph.D. Larson's graduate work focused on beef female repro-

duction and nutrition-reproduction interactions. He joined the faculty at the University of Missouri where he worked as a veterinary beef production specialist on the commercial agriculture program's beef focus team, a multi-disciplinary team made up of veterinarians, agricultural economists and animal scientists.

Dr. Larson is board certified by the American College of Theriogenologists, the American College of Animal Nutrition, and the American College of Veterinary Preventive Medicine. He serves as vice president of the Academy of Veterinary Consultants and president of the Evidence Based Veterinary Medicine Association. His primary interest areas are improving reproductive efficiency in cow herds and the integration of marketing, nutrition, health, production efficiency, and quality assurance in stocker and feed-lot operations.

Dr. Meredyth Jones joined K-State in August 2006 as assistant professor of food animal field services.

She received a D.V.M. degree from Oklahoma State University in 2002. She practiced in her father's rural mixed practice in Brandenburg, Ky., before returning to Oklahoma State for a residency in large animal internal medicine, food animal emphasis. She completed residency in June and will be board-certified by the American College of Internal Veterinary Medicine.



Dr. Meredyth Jones

Veterinary career opportunities workshop set

A veterinary career opportunities workshop is planned for November 3 and 4 in Manhattan. This meeting, sponsored by the colleges of Veterinary Medicine and Business, is intended to help busy, practicing veterinarians find the right person to join their practice as a new associate. Emphasis is on recruiting and hiring. Topics include employee expectations, fair benefits packages and reasonable job descriptions. Practitioners will meet and interact with veterinary students interested in mixed animal practice. They will leave the conference with a professional, printed job description and knowledge to help build their practices. Attendees earn 10 hours of continuing education credit.

K-State veterinary students will also attend the workshop. Brief mock interviews with the students will allow prospective employers and new associates to discuss expectations related to specific positions.

Registration fee of \$350 includes lectures, proceedings, Friday lunch, reception/dinner, breaks, and Saturday breakfast and lunch. To register, please send your payment to Veterinary Career Opportunities Workshop, Division of Continuing Education, 141 College Courts Bldg., Kansas State University, Manhattan, KS 66506-6015. Direct questions to Erin Thomas (785)-532-4281, ethomas@vet.k-state.edu.

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Thank you to the Pfizer Animal Health Group, Livestock Division, Cattle Products Group, for financial assistance in publishing this newsletter.

State-funded training program to address rural vet shortage

Bonnie R. Rush, Interim Head, Department of Clinical Sciences; Ronnie G. Elmore, Associate Dean for Academic Affairs and Admissions

New veterinary graduates are not engaging in food animal practice in private and public sectors. The result is a shortage of veterinarians in rural Kansas and rural America. Many students begin veterinary school with intentions of entering rural practice. However, the disparity between starting salaries in rural practice (compared to urban practice), and the average educational debt on graduation (\$122,000) make it difficult to attract new graduates to a rural setting. In order to address this issue, the Kansas Legislature and governor of Kansas have signed an educational bill (HB 3005) to be implemented this fall that supports students to enter rural practice in Kansas upon graduation.

House Bill No. 3005 is intended to provide a supply of veterinarians to meet the needs of livestock producers in underserved areas of Kansas through a loan forgiveness program, similar to the program implemented to provide family practice physicians in rural Kansas. First-year veterinary students will compete for five positions in the program. The selection committee will consist of the Associate Dean for Academic Affairs and Admissions, the Section Head of Agricultural Practice, the Chair of the Awards and Scholarship Committee, and a member of the Kansas Veterinary Medical Association. Selection will be based on experience, ability, interests, and intent to participate in a specialized training program and enter practice in underserved areas of the state.

Successful candidates will receive a \$20,000 loan per year for not more than four years for tuition, books, supplies, and additional training expenses. Participating students will complete the traditional veterinary medical degree program, an externship program with a licensed, ac-

credited veterinarian in rural Kansas, and specialized training in public health, livestock biosecurity, foreign animal disease, regulatory veterinary medicine and zoonotic disease. Examples of approved training experiences include programs with the following public agencies: Centers for Disease Control; USDA Food Safety Inspection Service; USDA Animal Plant Health Inspection Service; Kansas Department of Health and Environment; and Kansas Animal Health Department.

Annual renewal is not automatic. Participants will be required to submit a renewal application each year to document completion of externships and electives consistent with the goals of this program and outline a career development plan for the coming year. Individual programs of study for participating students will be approved individually on an annual basis by the Associate Dean for Academic Affairs and Admissions. When fully implemented, there will be 20 students within the College of Veterinary Medicine enrolled in the program (five students in each year of the curriculum).

Upon completion of veterinary school, participants must engage in full-time practice of veterinary medicine in any county in Kansas with a population not exceeding 35,000 for a period of at least 12 continuous months for each separate year a student receives a loan under the program. Graduates must commence such full-time practice within 90 days after completion of the degree program. If the participant enters a post-degree training program such as graduate school, internship or residency program, they must enter rural veterinary practice within the State of Kansas within 90 days after completion of such post-degree training program. Graduates must provide documentation of employment or practice establishment within an eligible county within 90 days of graduation, and must submit an annual update to the KSUCVM Associate Dean for Academic Affairs and Admissions by July 1 each year until his/her obligation is fulfilled.

Once commitments under the provisions of the agreement have been satisfied, the loans provided shall be forgiven. If a graduate fails to fulfill the obligation to engage in the full-time practice of veterinary medicine in accordance with the provisions of HB 3005, they must repay, within 90 days, the amount equal to the amount loaned less a prorated amount based on any such periods of practice of veterinary medicine meeting the requirements, plus interest (prime rate plus 2%, compounded annually) from the date the loan accrued.

The College of Veterinary Medicine and Dean Richardson look forward to the opportunities provided by the rural practice veterinary training program. The State of Kansas is the first state to respond to the shortage of food supply veterinarians by funding this program. These resources will allow KSU to recruit the finest prospective veterinary students with an interest in rural practice, implement new training programs in public health and production medicine, and retain specialty-trained veterinarians within the state.

Additional Reading

Andrus DM, Gwinner KP, Prince JB: Job satisfaction, changes in occupational area, and commitment to a career in food supply veterinary medicine. J Am Vet Med Assoc. 2006;12(15) 1884-1893.

Elmore, RG: Recruitment and retention of veterinary students for food animal practices. J Am Vet Med Assoc. 2003; 222(12) 1697-1699.

Scrapie research raises new questions

A paper published recently in the *Journal of Pathology* raises new questions about the cause and pathogenesis of spongiform encephalopathies, such as scrapie and bovine spongiform encephalopathy. The researchers found that scrapie prions were rapidly absorbed from the small intestine and transported to draining lymph nodes, but the places where the prions were first found to be multiplying were different from where they were absorbed and transported. They also found that in real life it is likely that prions would be degraded before reaching the small intestine.

Jeffrey and his group prepared isolated gut loops in 50 scrapie-free lambs of both scrapie-susceptible and scrapie-resistant genotypes. Gut loops were inoculated with homogenates of scrapie-infected or scrapie-free sheep brains or sucrose. Sheep were euthanized and necropsied at various times from 15 minutes to 1 month after inoculation and when they developed clinical signs of scrapie.

Prions were found by immunohistochemistry from 15 minutes to 3.5 hours post-challenge in the villous lacteals and submucosal lymphatics. Prions were also detected in dendritic-like cells in draining lymph nodes from 2 hours to 1 day post-challenge, but not in samples taken 3 to 10 days post-challenge. The first evidence of prion replication was detected in lymphoid nodules of Peyer's patches and in secondary follicles in jejunal lymph nodes one month after inoculation. This pattern of replication is identical to the pattern seen in naturally infected sheep, but initial replication occurred much sooner than it occurs in sheep with natural scrapie or sheep experimentally challenged with the BSE agent. Susceptible sheep developed scrapie 18 to 22 months after inoculation, while resistant sheep remained healthy. There were no differences in uptake and transport of scrapie prions from the intestines of susceptible versus resistant sheep, which suggests that resistance to scrapie is not due to differences in intestinal absorption. The authors indicate that the initial replication of prions in the jejunal lymph nodes can be explained by the route of absorption and transport of the prions from the intestines. However, the accumulation of prions in Peyer's patch lymphoid fol-

licles was unlikely to have occurred by the pathway of prion absorption observed in these sheep. One explanation is that there is something other than prions that is infective and prions are a marker of infection rather than the cause of infection.

Because ingested prions must pass through the forestomachs and the abomasum before they can be absorbed by the intestine, the authors wanted to determine the effects of gastrointestinal contents on scrapie prions. Scrapie infected sheep brain was incubated overnight in rumen fluid. Then abomasal fluid, bile, and small intestinal fluid were added sequentially to the mixture. This was done under both aerobic and anaerobic conditions. The mix was then tested for prions using a commercially available Western Blot test that is used for detection of scrapie-infected sheep. All samples incubated in gastrointestinal fluid tested negative, while the non-incubated samples were strongly positive. The researchers also utilized a more sensitive test and with this they were able to detect a small amount of undigested scrapie prions. They concluded that scrapie prions are readily digested by alimentary tract fluid and that in real life, where the infecting dose of prions is much smaller than that used for experimental infection, it is unlikely that scrapie prions would survive passage through the rumen and abomasum to be absorbed by the small intestine.

References

Jeffrey M, González L, et al. **Transportation of prion protein across the intestinal mucosa of scrapie-susceptible and scrapie-resistant sheep**, *J Pathol*, 2006;209:4-14

Canada tightens ban on use of cattle tissues capable of transmitting BSE

On June 26, 2006, the Canadian Food Inspection Agency announced that within the next year the Canadian government will ban the use of cattle tissues capable of transmitting bovine spongiform encephalopathy (BSE) referred to as specified risk materials (SRMs) in all livestock feeds, pet foods, and fertilizers. The final regulations will be published on July 12, 2006, and will go into effect on July 12, 2007. The year between publishing and implementing the regulations will give manufacturers time to adjust to the new rules. Small packing houses, which are usually regulated at the local level, will have an additional six months to comply.

Canada had previously banned the use of SRMs from use in ruminant feeds and from entry into the human food chain. The new regulations will extend the ban to include all animal feeds and fertilizers. The purpose of the new ban is to prevent cross-contamination of ruminant feeds in feed mills and on premises that produce feed for ruminant and nonruminant species and to prevent exposure of cattle to SRMs by pet food or by fertilizers applied to farm fields. Canadian officials believe that the expanded ban will increase export opportunities for Canadian beef and feeds. They hope this will help the Canadian beef industry regain lost export markets.

Specified risk materials consist of the skull, brain, trigeminal ganglia, eyes, tonsils, spinal cord, and dorsal root ganglia of all cattle 30 months old and older, and the ileum of cattle of all ages.

Abstracted from Elliott, Ian, Canada tightens feed rule, Feedstuffs, July 3, 2006, p. 1

Continuing Education

November 3-4

Veterinary Career Opportunities Workshop

November 6-17

VetBytes Utility of the Right Lateral Intercostal Scan Plane in Dogs

January 27, 2007

Canine Care Workshop

March 3

Veterinary Technicians Conference

March 5-16

Vet-Bytes – Outpatient Pain Management in Dogs and Cats: Beyond NSAIDs and Fentanyl Patches

April 9-20

Vet-Bytes – Bovine Spongiform Encephalopathy (BSE): An update on the current U.S. situation

June 3-6

69th Annual Conference for Veterinarians and KVMA Veterinary Trade Show

For the most complete, up-to-date conference information visit our Web site at: www.vet.ksu.edu and click on Continuing Education, or contact: Linda M. Johnson, Ph.D., at 785-532-5696 or johnson@vet.ksu.edu

Upcoming Events

November 16

KSU Swine Days, Manhattan

December 13

KSU Dairy Days, Reno County

December 14

KSU Dairy Days, Nemaha County

December 15

KSU Dairy Days, Franklin County



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