

HIGHLIGHTS

A PUBLICATION FOR OUR ALUMNI AND FRIENDS

Winter/Spring 2002

Chair's Message, Gary B. Anderson, Chair



Greetings to alumni and friends of the Department of Animal Science. The articles in this issue of *Highlights*, like our department, cover the full range from continuing departmental traditions to that which is new to the field of animal science. We report the successes of our

Livestock Judging Team, a long-standing departmental tradition from whose experience decades of UC Davis undergraduates have benefited. Maintaining other traditions, the department hosted Dairy Cattle Day and Dairy Goat Day, annual events aimed at California's animal industries. *Highlights* also honors the long career of Dr. **Bob Laben**, who contributed so much to so many undergraduates and who at the age of 81 is still active in the department; generous donations by Bob and his wife Dorothy continue to serve undergraduate education through two scholarship funds.

Also serving undergraduates were alumni who participated in our annual Career Symposium, organized by alumna **Ria de Grassi**. Innovations in the department include adding a Cooperative Extension Specialist to our faculty to conduct environmental research and outreach on air quality and animal agriculture. *Highlights* also showcases cutting-edge projects in the Genomic Variation Laboratory led by Professor **Bernie May**. Finally, we want to tell you about the good fortunes of our graduate students who fared well in competition for fellowships and in international graduate research competition. We are proud to serve the best of our traditions and at the same time continually grow to meet the new needs of our stakeholders. *Highlights* is for you, and we hope that you enjoy hearing about what's old and what's new in your department. If ever we can be of assistance to you, please feel free to ask (530/752-1252, gbanderson@ucdavis.edu).

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Dr. Frank Mitloehner Hired as Air Quality Extension Specialist



The department is pleased to announce the appointment of Dr. **Frank Mitloehner** as our new Air Quality Extension Specialist. Dr. Mitloehner has a background in both animal science and agricultural engineering. A native of Germany, he earned a Master of Agricultural Engineering degree from the University of Leipzig (Germany) in 1996 where he specialized in beef cattle production, physiology, animal behavior and environmental management. After Leipzig, he spent a year engaged in graduate studies at the University of Göttingen, then enrolled in the graduate program in animal science at Texas Tech University (Lubbock) where he continued his studies on the relationship between animal production systems and the environment. In 2000, he was granted a Ph.D. in Animal Science with a dissertation on environmental and

behavioral management of feedlot cattle. In this research Dr. Mitloehner found that aerial dust concentrations in feedlots could be reduced by 30% by changing the feeding regimen of feedlot cattle from the traditional morning (or noon) feeding to times that reflect more accurately the animals' natural drive to eat at sunrise, noon and just before sunset. This alternative feeding management strategy reduced the incidence of dust-generating behaviors in cattle. In conjunction with his air quality research, Dr. Mitloehner studied the effects of heat stress on the performance, carcass quality, physiology and behavior of cattle and pigs. Beginning August 2000, Dr. Mitloehner was a post-doctoral fellow in the Department of Animal Science and Food Technology at Texas Tech studying heat stress amelioration and dust control in cattle.

In his new position in the department, Dr. Mitloehner will focus on the identification of optimal management strategies and resource-use programs that contribute to reducing the impact of animal agricultural practices on air quality while limiting negative economic impacts on the agricultural industry and ensuring the environmental sustainability of the industry. As a Cooperative Extension Specialist, Dr. Mitloehner will work with county-based farm advisors, veterinarians, industry groups, public officials, regulators and faculty researchers to plan and coordinate statewide extension education and information transfer programs related to the improvement of air quality and associated management practices of livestock. His applied research interests include air sampling of particulate matter (dust), odorous gases such as ammonia and hydrogen sulfide as well as nonodorous carbon monoxide from livestock operations. Other research interests include the correlation of offensiveness of odors and their chemical composition (olfactometry and chemical analysis of odors) and determination of the interrelationships of odor and dust.

Dr. Mitloehner has considerable international experience, having worked in South Africa, Paraguay, China and Australia. He has served as a consultant for the government of Paraguay and several cattle feedlot companies in the area of behavioral and environmental management.

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Professor Emeritus Robert C. Laben Continues to Serve



Professor Emeritus **Robert C. Laben** has always been one of the department's most enthusiastic promoters and supporters. During the Students First Campaign in the mid-1990s, he and his wife established the Robert and Dorothy Laben Undergraduate Scholarship. More recently, they founded the department's Educational Enhancement Fund for undergraduates to support out-of-class educational opportunities. Dr. Laben was born and raised on a dairy farm in Genesee County, New York. His university life began at Cornell in 1938. A month after he graduated, in June 1942, with a B.S. in Animal Husbandry, he was ordered to active military duty as a reserve officer in the US Field Artillery. His unit, the 79th Infantry Division, was part of the D Day invasion force assigned to take the port of Cherbourg, France. Near there, he

was wounded in action as a forward observer with the infantry. After a brief hospitalization in England, he returned to command his battery. On October 2, 1944, while going forward to direct fire, his jeep hit a mine. He was evacuated to an army hospital in New York State where after a series of operations he was retired from active duty in June 1946. Between operations he taught in the Cornell ROTC Department. It was there that he met his future wife, Dorothy, a nutrition graduate student. In September 1946, Bob entered the Oklahoma A&M graduate program, and he and Dorothy were married in November. While working on his M.S. in animal breeding, Dorothy taught chemistry at the college. After receiving his degree, he and Dorothy moved to the University of Missouri where Bob earned a Ph.D. conducting a genetic analysis of Holstein dairy cattle records.

Soon after receiving his Ph.D. in 1950, an instructor position opened in the Department of Animal Husbandry at UC Davis. Bob got the job and taught his first course in the fall of that year. Thus began his illustrious career at UC Davis spanning some 36 years, until he retired in 1986. Needless to say, Bob loved teaching and his students. For many years, he taught courses in dairy cattle production, lactation and animal breeding. When not in the classroom, he could often be found advising students and helping them with special projects. He was master advisor for the Animal Science undergraduate major for 15 years, and in 1973 he received the College's Undergraduate Student Advisor Award.

Professor Laben was also active in graduate education and served as major professor and committee member for many graduate students. Many of them came from places like Pakistan, Sudan, Congo, Mexico, Venezuela, Chile and Peru. Most of them became involved in research on the genetics of dairy cattle and goats. His Ph.D. students included Clive Arave (1964), A.A. Alrawi (1978) and Omar Betancourt (1981).

Dr. Laben's own research focused on cattle breeding. His first major research investigation at UC Davis was on the California Dairy Cattle Research Project, investigating the effects of inbreeding on economically important traits in Jersey cows. In the late 1960s and early 1970s, Bob became involved in the Western Regional Dairy Cattle Breeding Project on milk composition, a study designed to increase

milk solids, especially protein. At the time it was difficult to accurately determine quantities of milk protein, and wool dyes that bind to protein were being used to measure protein levels in milk with a colorimeter. Professor Laben and his colleagues worked to develop and refine colorimetric techniques for milk constituent analysis, including the development of a flow-through cuvette.

In the mid-to-late 1960s, Professor Laben worked as a team member in DDT research examining the impact of environmental DDT on the dairy industry and the food supply. The ultimate goal of the project was to reduce and limit the presence of DDT in milk. Bob's role was to study levels of DDT in cattle feed and the rate at which DDT decayed. The Mastitis Research Project followed, in cooperation with the School of Veterinary Medicine. Bob was in charge of milk sampling and the analysis of the data collected. During a sabbatical leave in 1976-77 at Iowa State University, Bob worked with Dr. Gene Freeman in analyzing some 270,000 California DHIA lactation records for constants useful in selection practices and the relationship between traits such as milk production and reproductive efficiency.

In addition to his teaching and research responsibilities, Professor Laben served as Director of the campus computer center between 1965 and 1969. He is quick to point out that modern-day computers are a bit smaller than the monstrous machine he supervised back then in the basement of Hutchison Hall.

Bob and Dorothy will celebrate their 56th wedding anniversary this year. They raised four children in Davis, all of whom graduated from UC Davis. John lives in Williamsburg, Virginia, Robert in Chandler, Arizona, Elizabeth in Bakersfield, California and Catherine in Bend, Oregon. There are six grandchildren.

Since retiring, Professor Emeritus Laben spent six months working with the Food and Drug Administration in Washington, D.C. He has also helped Dorothy distribute food to organizations assisting needy families in Yolo County. For over 40 years, Bob has served as a volunteer hunter education instructor for the California Department of Fish and Game; in 1991 he was named Yolo Sportsman's Association Sportsman of the Year and, in 1995, Instructor of the Year. Most years, he has found time for a fall trek to Wyoming for deer or antelope. In 1986, he and Dorothy participated in a People to People mission to China, and in 2001 they visited Japan, specifically the area where Dorothy had been a second-grade student in the American School in 1920.

Bob and Dorothy still take great pleasure in attending department functions, especially those involving students.

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Genomic Variation Laboratory Broadens Aquaculture Program

Walk into Dr. Bernie May's lab at any time of day or night and you are likely to find someone working. With 11 graduate students, one postdoctoral researcher, six undergraduate students and two full-time employees, it is a dynamic research facility filled with interesting people, ideas and projects. Researchers in the laboratory employ the latest molecular genetic techniques and analyses to address a wide variety of questions for both the conservation of wildlife and the improvement of aquaculture species. This wide-ranging program is in keeping with the broad vision of its director, Dr. May, who began the Genomic Variation Laboratory in 1995 with two main goals: to apply molecular genetic data to ecological and management questions and to educate and provide hands-on experience to as many students as possible in molecular ecology and aquaculture genetics.

Two ongoing research studies in the laboratory involve assessing the genetic integrity of the California golden trout (*Oncorhynchus mykiss aguabonita*), the state fish. Over the years, many of California's rivers and tributaries have been stocked with non-native rainbow trout (*Oncorhynchus mykiss mykiss*). These introductions have threatened the existence of the California golden trout by interbreeding with it to create a hybrid of the two subspecies. Jan Cordes, a postdoctoral researcher in the laboratory, has taken the lead on this project over the past year. He recently completed a study that assessed the genetic status of California golden trout in Golden Trout Creek and the surrounding headwater lakes using various nuclear DNA markers. A second study will evaluate the degree of rainbow trout hybridization within another subspecies of rainbow trout endemic to the Kern River Basin, the Little Kern golden trout (*O. mykiss whitei*).



The California golden trout, *Oncorhynchus mykiss aguabonita*, is threatened by hybridization with introduced non-native trout species.

Another organism currently undergoing investigation in the Genomic Variation Laboratory is the blue whale, the largest animal ever to have lived and a species in danger of extinction due to overexploitation by the whaling industry. Carole Conway, a doctoral student in Ecology, has been focusing on a fundamental question directly related to its conservation: What are the geographic boundaries of the breeding populations? Her results so far include the finding that the blue whales off the California coast are part of an eastern Pacific Ocean group that is genetically unique compared with the three subspecies of blue whales in the Atlantic, Indian and Southern Oceans.

The Genomic Variation Laboratory has also contributed to the Animal Science-initiated aquaculture of

white sturgeon. As part of his doctoral dissertation research in Genetics, Jeff Rodzen, in collaboration with commercial white sturgeon growers, formulated a breeding plan for the white sturgeon that merged molecular genetic technology with traditional animal breeding practices. His plan entails the selection of broodstock using animals with the greatest body length and weight, traits that he showed in his analysis to be heritable and positively correlated with caviar weight and yield.

Many other interesting projects are being conducted by doctoral students in the Genomic Variation Laboratory. Zeb Hogan, Graduate Group in Ecology, is investigating the population structure of migratory catfish currently threatened by hydropower in southeast Asia. Fernanda Rodriguez of the Genetics Graduate Group is using various molecular genetic markers to assist aquaculture managers in the development of strains of disease-resistant rainbow trout. Kevin Williamson, Ecology, is generating a baseline of the genetic variation present in chinook salmon in the Central Valley, while Chris Floyd, Ecology, is using microsatellite markers to measure dispersal among marmot populations in Colorado and Nevada. Josh Israel, Ecology, is determining whether migrating green sturgeon in California are panmictic or form reproductively isolated populations. Amy Welsh, Ecology, is investigating the population structure of the endangered lake sturgeon in the Great Lakes region, while Yongjiu Chen, Ecology, studies introgression in endangered tui chubs. Molly Stephens, Ecology, is conducting a phylogenetic analysis to elucidate the evolutionary relationships between the western and Yosemite toads. Jennifer Beyer, Genetics, is working on a computer program to determine family units in natural populations, and Rick Topinka, Ecology, is examining the distribution of genetic diversity within Kearney's blue star, an endangered desert plant in Arizona.

To learn more about the Genomic Variation Laboratory and its current members and projects, visit us on the web at <http://genome-lab.ucdavis.edu>, or contact us at:

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Alumni Advise Undergrads on Career Choices



The annual Animal Science Alumni Career Symposium was held on March 2, 2002, at the Recreation Pool Lodge. Alumni came to campus to meet with current undergraduates to discuss career opportunities in the animal sciences. The symposium was planned and executed with the help of **Ria de Grassi** (B.S., '83; M.S., '87), who sees the event as a way to give back to the department and programs that led her to a rewarding career. As in previous years, the symposium was preceded by a breakfast at the University Club lounge where visitors and faculty renewed old acquaintances. Speakers at the event, all UC Davis graduates, included **Paul Martin** (B.S., '65), **Marlies Boyd** (B.S., '83; M.Ed., '89), **Kathleen Hoenow** (B.S., '94), and **Mary Biesiadecki** (B.S., '89; MAM, '95; DVM, '96).

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Dairy Goat Day

The 2002 Dairy Goat Day was held on the UC Davis campus on January 19 at the Campus Main Theater. Over 250 people attended the event, sponsored by the Department of Animal Science, the School of Veterinary Medicine and the California Dairy Herd Improvement Association (DHIA). The program's primary focus this year was animal health and biosecurity.



Dr. Sharif Aly of the UC Davis School of Veterinary Medicine discusses goat behavior with a crowd of Dairy Day on January 19, 2002.

The morning program consisted of short lectures, and seven different stations including practical demonstrations were available in the afternoon. DHIA conducted a tester training program for people interested in being certified DHIA testers.

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Dairy Cattle Day

Dairy Cattle Day, held on March 20, 2002, offered a program of expert presentations on the contemporary issues including tail docking in dairy cattle, preparedness for epidemic disease outbreaks, air quality issues and Johne's disease. A panel discussion on county environmental regulations stimulated considerable discussion. Very popular were short presentations on research by departmental graduate students.

Demonstrations during the afternoon program, held at the campus Dairy Teaching and Research Facility, included locomotion scoring, functional foot trimming and use of rumen-fistulated cattle in dairy research. About 150 dairy producers and representatives of allied industries attended. Printed proceedings of the program are available from Dr. Ed DePeters (ejdepeters@ucdavis.edu) or by calling 530/752-1250. Proceedings may also be read at

<http://animalscience.ucdavis.edu/events/dairycattleday/2002/Proceedings.htm>

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Graduate Students Fare Well in Campuswide Fellowship Competition

The Department of Animal Science has recently learned that its current and incoming graduate students were highly successful in competition for campuswide fellowships for the 2002-2003 academic year. Angie Jinks, a graduate student in the Animal Science M.S. program, received a Jarena D. Wright and a Zolk Fellowship. Veronica Allen and Logan Smith, two incoming students new to the Animal Science M.S. program for next fall quarter, received McArthur and Tryon Fellowships. Johanna Rochester, an incoming student in the Avian Sciences M.S. program, received a Graduate Opportunity Fellowship. Three Physiology Ph.D. students also received campuswide fellowships: Cindy Batchelder was awarded the Lillie Mae Richards Fellowship, Jeff Mason the McDonald 5 Fellowship, and Eeman At-Taras a Dissertation Year Fellowship. Josh Isreal, an Ecology Ph.D. student in the Department of Animal Science, received a Walker Fellowship, and Sally Pyle, a Nutrition M.S. student, received a McArthur Fellowship. These awards in campuswide competition attest to the high quality of our graduate students. Nevertheless, these fellowships support only a few of the nearly 100 graduate students pursuing graduate studies research in the department.

The Department of Animal Science also has fellowships for its graduate students apart from those available campuswide. These departmental fellowships are supported by income from endowments established with donations given expressly for this purpose. Some of these fellowships have histories of more than 50 years, while some were established quite recently (e.g., the Jessup Fellowship). Some were established by departmental faculty (e.g., the Hart, Cole and Goss Fellowship, and the Ogasawara, Kratzer and Vohra Fellowship); other fellowships were established by alumni and friends of the department (e.g., Humphries Fellowship, Swingle Fellowship and Brownell Fellowship). Donations to the department can be added to the principal for specific fellowships, and larger donations can provide named fellowships to ensure long-term graduate student support. For information on contributing to the principal of an existing fellowship or establishing a new named fellowship, please call department chair Gary Anderson (contact information on Highlights cover page).

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Judging Team Continues Successes

The Cal Aggie Judging Team has successfully participated in several national competitions this winter. In January the team placed fifth in the Cattle Carload Competition at the National Western Stock Show in Denver, with **Anna Hoes** placing fifth in that category and **Gillian Ferguson** placing fifth in Sheep Evaluation. In February they excelled in Quarter Horse Selection at both Fort Worth and Houston, garnering second and fifth High Teams, respectively. In early March the Cal Aggies won overall team and individual honors at the Great Western in Tulare; **Allison Hamilton** earned high individual honors with **Darcy Machado** winning the oral reasons division. Also on the 2002 team are **Becky Domenigoni** and **Elisa Noble**. **Dana Van Liew** coaches the team.

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New Employees



Charlene Adan joined the department business office in late February as a budget analyst responsible for managing the extramural accounts. For the previous 15 years, she worked as a bookkeeper for five different entities of the Hoffart family's ranches. Three years ago, Charlene, originally from Alturas in far northern California, moved to Davis from Woodland. She enjoys working, gardening and spending time with family and friends. Her greatest treasures are her three children and six grandchildren.



Ilene Gunn is the new administrative assistant to the department chair. Her responsibilities also include coordinating meetings, processing travel vouchers and providing general office services to the staff and faculty. Ilene grew up in Iowa. She received an A.A. degree from Modesto Junior College and worked for Southwest Baptist University in Bolivar, Missouri, for five years. She and her husband, Kenneth, recently moved to Davis from Missouri. They have two sons, David who lives in Missouri and will be married in May, and Michael who lives in Vacaville with his wife and children. Ilene and Ken enjoy spending time with their two young granddaughters, Victoria and Katrina.

Jerry Johnson joined our department in April as the new beef operations manager at the Sierra Foothill Research and Extension Center. He was on the Carnation Genetics team that produced one of the world's first live calves from a frozen embryo. His Pacific Trail Cattle Company in Coleville in the eastern Sierra Nevada has been honored by the American Gelbvieh Association (AGA) for excellence in productivity of its cow herd. A graduate of Cal Poly, San Luis Obispo, Jerry is acting president of the California Beef Cattle Improvement Association and has served as a board member of the AGA. He and his wife Sally have two daughters, Erika, 22, and Greta, 25. Jerry enjoys fly fishing and camping with his family.

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Equine Program Receives Gifts

In April 2001, Vela Corporation, under the guidance of Al Felice, president of property development for the company, kindly donated \$5,000 to our equine science program in recognition of the equestrian community's appreciation for work done in the program. Al and his wife Sarah are horse lovers and horse owners, particularly interested in draft horses and driving. Every year they come to the Horse Facility on Picnic Day to see our exhibits and demonstrations. In April of 2000, their corporation donated \$1,000 to our program. The monies will be used to support our teaching and outreach activities.

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Animal Science Moves Closer to Receiving Major Gift

Lorenzo "Rennie" McOmie and his wife Judith raised sheep in Solano County for 25 years, during which time they maintained a strong professional relationship with Glenn Spurlock, Animal Science Cooperative Extension Sheep Specialist. In 1975 the couple used proceeds from sale of their ranch to establish a charitable trust that provided them income throughout their lives. Judith passed way in 1984 and Rennie in 2001. The trust has now established the L.M. McOmie Research Fund at UC Davis and at Cal Poly, San Luis Obispo. UC Davis' share of the trust totals more than \$9 million, making it one of the largest gifts in campus history. Income from the UC Davis portion will be split between the Department of Animal Science and the Department of Agronomy and Range Science. Estimates for annual income to Animal Science range from \$100,000 to \$150,000 with first income expected in 2002. Animal Science faculty have recommended that a high-priority use of the funds be to establish a McOmie Graduate Fellowship for graduate student support. Other uses will include matching funds for facilities construction or improvement, as seed money for new research initiatives and for workshops and outreach activities, collaborative research with other departments and visiting professorships.

The McOmie Graduate Fellowship and other uses of the L.M. McOmie Research Fund to support academic programs in Animal Science are a permanent legacy of Rennie and Judith McOmie's generosity and foresight. The Department of Animal Science expresses its deepest gratitude to the McOmie family for its long-term support of departmental missions in teaching, research and outreach. Anyone interested in learning about the benefits of gift-giving to the university can call department chair Gary Anderson (contact information on Highlights cover page) for referral to the appropriate campus professional.

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Notable Notes

Staff Service Awards

The department hosted a staff service awards reception on March 28, complete with lots of ice cream and toppings. Abbas Ahmadi, Martin Dally, Susie Reichel and Dan Sehnert all received 20 year pins while Deborah Grossman and Chris Craig-Veit were honored for 25 years of service to the university and department.

Eggceptional Update

In the late 1980s, egg industry leaders in California requested a program to assure the production of safe eggs and to address concerns about egg safety. Animal Science poultry specialist Ralph Ernst represented the University of California on that first industry/agency committee. Since 1995, when the first plans were developed and approved, hundreds of producers have completed the California Egg Quality Assurance Program. Recently the program was a co-recipient with California Animal Health and Food Safety Laboratory of a \$218,000 FDA grant to conduct a three-year study of Salmonella enteritidis in eggs. The program also completed a 16-month field study that included 91% of all the known egg layer ranches in the state. Finally, UC Davis is participating in two FDA committees to develop and implement the "Egg Safety Action Plan," the first federal program regulating food-borne pathogens at the farm level. For more information: Ralph Ernst, Poultry Specialist Department of Animal Science (530) 752-3513 or email him at raernst@ucdavis.edu .

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Marcelo Bertolini Wins International Award for Graduate Student Research

Doctoral student Marcelo Bertolini received first-place honors for graduate student research at the 2002 Annual Meeting of the International Embryo Transfer Society, coincidentally held in his native Brazil. Marcelo competed with 46 other graduate students from around the world in competition based on research quality expressed in a written abstract, a poster session and an oral presentation. The research he presented was designed to determine why calves born from in vitro fertilization (IVF) procedures sometimes have abnormally high birth weights, a problem seen in cattle and sheep but not humans. His results demonstrated that IVF fetuses develop a placenta with enhanced nutrient transport from the mother to the fetus, which could account for enhanced fetal growth. This honor is Marcelo's second major graduate student research award. In 2000 he placed first in graduate student research competition at the Annual Meeting of the Western Section American Society of Animal Science. His earlier research suggested that the placenta, not the fetus itself, was a likely contributor to the birth of large IVF calves, a theory on which his subsequent experiments were based. Marcelo recently completed his Ph.D. studies in the laboratory of department chair Gary Anderson and accepted a postdoctoral research position in the department working on transgenic animal production while his wife Luciana completes her Ph.D. studies in genetics in Dr. Jim Murray's laboratory.
