Department of Animal Science, UC Davis

HIGHLIGHTS

A PUBLICATION FOR OUR ALUMNI AND FRIENDS
Fall 1996

Message from the Chair

It wasn't long ago that faculty had their letters typed in the main office, the chair communicated by memos and records were stored in notebooks As you know, that has all changed with the computer.

Faculty do their own word-processing, the chair communicates by e-mail and records are stored on little chips. In the process, we've become much more efficient at what we do.

One of the lead articles in this issue of Highlights is about our new Department Web Page. By going to the World Wide Web and entering our address http://animalscience.ucdavis.edu , you can find information about our faculty and Extension specialists, staff, students and the Department Development Board. It will bring you up to date on our current teaching curricula, research programs, outreach activities and events.

Prospective students can find out about the courses we teach, scholarships and fellowships, internships, student clubs and job opportunities.

Animal producers can access information about their businesses, including software developed by our Extension specialists.

The department's Web Master, Abbas Ahmadi, tells me that we are getting 500 to 1500 hits a day on our home page from all over the globe. How did we ever get along without these little machines?

Ed Price

Department of Animal Science, UC Davis

HIGHLIGHTS

A PUBLICATION FOR OUR ALUMNI AND FRIENDS

Fall 1996

What's Happening? - Take the Virtual Tour

http://animalscience.ucdavis.edu

The Department of Animal Science is now on line. On line? Yes, we have our own Web site through the efforts of our Web Master, Dr. Abbas Ahmadi, the department became part of the Internet this past summer. It is now possible to take a virtual tour of the department and campus without leaving your computer keyboard.

A prospective student can now access the Animal Science Advising Center where he or she will find a complete description of the department's undergraduate majors, availability of scholarships, descriptions and updates of department courses and even career opportunities available to the Animal Science graduate.

A student considering graduate studies can examine the interests of individual faculty members, view the graduate program requirements and download an application form. The Master of Agriculture and Management Program offers the opportunity to discus degree requirements with recent graduates.

You will find the site an excellent source for information on department seminars and upcoming events. Current and past issues of Highlights can now be accessed on line. Descriptions of the extensive library of management and decision-making software programs developed by the department can be found on the site. Order forms can be downloaded for each of the programs.

Faculty members have individual pages giving information about their research and laboratories Clicking on their e-mail address pops up an e-mail form offering a handy means of communicating with individual faculty members.

Give it a try!

Department of Animal Science, UC Davis

HIGHLIGHTS

A PUBLICATION FOR OUR ALUMNI AND FRIENDS

Fall 1996

Animal Science Offers Courses in Equine Science Via Two-Way Telecommunication

The Department of Animal Science, through the leadership of Associate Professor Jan Roser, has cooperated with three other universities to organize the first equine distance learning program in California.

In 1994, UC Davis, Cal Poly Pomona, Cal Poly San Luis Obispo and Cal State Fresno, joined together to form the California Universities Equine Sciences Consortium (CUESC). The mission of the CUESC is to share expertise through the instruction of upper division equine science courses and to provide outreach (extension) educational short courses to the California horse industry.

Course lectures transmitted via compressed video, provide students with live, two-way, interactive communication with their professors. The courses are taught in the evenings to fit into the schedules of the students participating at different universities. "It is very exciting to be able to sit in a classroom at Davis and communicate via TV with students and professors from all over the state on equine related topics," comments Dr. Roser.

During a 15-month period, four courses were completed via interactive distance learning, including Equine Exercise Physiology, Equine Nutrition and Farrier Science. Advanced Equine Reproduction will be incorporated during the 1996-97 academic year.

This cooperative effort has enhanced the learning environment at the respective campuses b integrating faculty expertise encompassing many different disciplines, as well as expanded student access to more professors with expertise in the equine sciences and expanded equine science course offerings at the individual campuses. "Furthermore," says Dr. Roser, "it has facilitated collaboration between the schools in the areas of information transfer and research."

Overall student satisfaction with the distance learning format has been favorable; 4.3 on a 5 point scale (1 =poor and 5=excellent). Student surveys suggest that the educational benefits of this technology diminish any audio or visual technical difficulties experienced during a class session.

The Department of Animal Science finds that this technology has enhanced and complemented the undergraduate and graduate learning experiences in the equine science program. Department Development Board member, Robert Bray, a professor at Cal Poly Pomona, was a key player in the initiation of this coursework program.

Department of Animal Science, UC Davis

HIGHLIGHTS

A PUBLICATION FOR OUR ALUMNI AND FRIENDS

Fall 1996

Callipyge Gene Mutation Could Revolutionize Lamb Industry

In 1983, a mutation that could revolutionize the lamb industry appeared in a commercial sheep flock in Oklahoma. Sheep expressing this mutation exhibited marked enlargement or hypertrophy of certain muscles, notebly those of the hind legs and loin.

Due to the characteristic shape of the muscles of the hind legs, the mutation was named Callipyge (Greek for well-proportioned buttocks). This effect is illustrated in the accompanying photo, with two normal lambs on the left and two Callipyge lambs on the right.

Callipyge lambs quickly began winning ribbons at livestock shows across the country. Feeders were also happy with the improved weight gain and feed efficiency, and packers were impressed with the 30 to 50% higher meat yields.

However, as time went on, a serious draw back became evident: the meat was very tough.

Current research at UC Davis by Department of Animal Science Assistant Professor Bob Sainz, in collaboration with the USDA, Washington State University, University of Idaho, Texas Tech, Utah State University and Superior Packing Co., is aimed at learning about the mechanisms causing the increased toughness and finding ways to overcome it.

The most likely culprit appears to be reduced fragmentation of muscle fibers during the postslaughter aging process due to elevated levels of calpastatin, a protease inhibitor present in muscle. Several potential tenderizing procedures are being investigated, including:

1. Electrical stimulation, which accelerates the aging process;
2. Calcium chloride injection which stimulates myofibril fragmentation;
3. Freezing and thawing, which damages the calpastatin molecule;
4. The Hydrodyne method, which uses an explosive charge to mechanically disrupt muscle fibers.

Overcoming the tenderness problem would enable use of the Callipyge gene to improve the profitability of the lamb industry

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Department of Animal Science, UC Davis

HIGHLIGHTS

A PUBLICATION FOR OUR ALUMNI AND FRIENDS

Fall 1996

Raising Fish in the Desert?

Animal Science Professor Graham A.E. Gall initiated a new research project on the development of a new breed of Tilapia during a visit to Israel in September.

Tilapia, a tropical fish, has emerged as a major component of fist production in the United States, Israel ana many Asian countries.

Collaborating with Dr G. Hulata (Israel), Dr. B. May (UC Davis) and Dr. E. Hallerman (Virginia), Dr. Gall will work on crossing various species of Tilapia to produce a new breed with high growth performance in cool and high-saline water.

As the species crosses are produced in Israel, genes will be mapped to their respective chromosomes using molecular-genetic markers to enhance genetic understanding of the species and to locate genes directly affecting performance traits.

While the approach of producing species crosses to create genetic variation has been highly successful in plant breeding, this is the first attempt to apply the methodology to an animal species.

Department of Animal Science, UC Davis

HIGHLIGHTS

A PUBLICATION FOR OUR ALUMNI AND FRIENDS

Fall 1996

Doctoral Student Moms Lead Dual Lives

The percentage of women as Animal Science graduate students, particularly those going for a doctorate (once a male domain), has increased steadily over the years; this fall 15 of the current 30 PhD candidates in the department are women.

Since their age generally makes them prime candidates for motherhood as well, how are those with children managing the conflicting demands for their time and energy?

Today some highly productive Animal Science graduate students are demonstrating that it's possible to excel in developing an academic career and in raising children as well. While recognizing that a good number of fathers are also excelling in both academics and parenting these days, two women now working on doctorates in Animal Science exemplify particularly well the success that young women are having in combining the roles of student and mother.

Shelley Cargill, 28, is pursuing a PhD in Physiology with emphasis in reproductive physiology. With a BS in Animal Science from Cal Poly at San Luis Obispo and a Master's degree in Animal Science from UC Davis behind her, she is in the final year of her PhD thesis research.

Althougl her career goals are not set in stone, she plans to apply for positions in biotechnology and for a few select positions in academia. A postdoctoral program is not out of the question. In the middle of this, she got married two years ago and, last October, had her first baby.

How does she manage? Shelley says, "The main thing necessary to manage a family and grad school is complete dedication to your project. A person will always make time for family. However, you must be completely dedicated to your grad school goals in order to complete your degree. Efficient time management is paramount."

"Basically I have given up everything except grad school and my family," says Shelley. " I think that my degree is worth a lot, which means that I am willing to sacrifice things in exchange for the degree. It helps to remember that getting the degree is only a temporary thing and won't be forever. Don't misunderstand me, it is very difficult at times to do it all. You can't sort of be a parent and you can't sort of be a grad student without letting someone down."

Cindy Daley agrees that excelling in both arenas is time consuming. She and her husband have two children, 5 and 7 years of age. Being a graduate student "makes for a rather hectic schedule," she says, "but I enjoy the fast pace and the challenges it presents."

Cindy, a transplant to California from her family's corn and cattle ranch in Illinois, is pursuing a PhD dissertation focusing, perhaps fittingly, on stress-related mechanisms that impact reproductive function, data which she plans to present at next summer's meet production. In addition to these studies, she has been working on two applied research projects that have direct industry applications.

Cindy obviously does maintain a fast pace. After completing a BS at the University of Illinois, then a Master's degree in 1986 at Cal State Fresno, she worked as a Staff Research Associate first at the UC Davis Veterinary Medicine Teaching and Research Center in Tulare and later at the Sierra Foothill Research and Extension Center.

In 1991 she returned to graduate school to pursue a PhD in Endocrinology, working with Professor Tom Adams. Although she took a year off "to re-evaluate things and get reorganized," since then she has received two successive Jastro-Shields Research Awards, two successive years of Lyons Fellowship Awards and a $5000 scholarship from the American Association of University Women.

As a co-author, she obtained $6000 from the UCD Animal Agricultural Research Center (AARC) for collaborative research with Cal State Chico and more recently, in collaboration with Chico's Plant Science faculty, an $80,000 grant from USDA for curriculum reform. Impressive, no? In her spare time, she and her husband Dave, a fourth generation rancher run 150 commercial cows on their Northern California ranch but intent to increase that number once she's not so busy here in Davis.

Shelley and Cindy both depend on new age husbands. Cindy finds it significant that "family roles are gradually changing, as are the attitudes of men towards child-rearing and responsibilities associated with children. We are full partners in child-rearing, which has allowed me the opportunity to further my career goals and still enjoy my family."

Shelley agrees, confessing, "I need my husband's support mentally as well as physically. He helps with the baby and listens to the problems involved with my project."

Both women include their children in their activities. Shelley explains that although there's little time for herself, "That doesn't mean that I don't exercise. I just have to be creative and exercise and spend time with the baby at the same time."

Cindy also tries to make her children part of what she does as often as possible. "My kids come to campus with me on the weekends and evenings when and where appropriate, particularly when I am doing any kind of animal work. They enjoy going to the Colt Facility and the big barn at the Feedlot. When we arrive they have their jobs to do and feel good about being able to 'help Mom.'"

Cindy claims, "1 choose to have both a career and a family because I am willing to put in the extra hours it takes to make sure I can do both well. I am proud of the work I have accomplished here during my graduate program."

Needless to say, the Department of Animal Science is proud of its graduate students, and proud to have

provided the environment in which hardworking graduate students, both men and women, can succed.

Department of Animal Science, UC Davis

HIGHLIGHTS

A PUBLICATION FOR OUR ALUMNI AND FRIENDS

Fall 1996

Extension Program Aids Ranchers

No one needs to remind cattle ranchers that times are tough. Anima Science Livestock Systems Specialist Jim Oltjen has developed a course that helps cow-calf producers objectively evaluate the economic condition of their ranch businesses.

The course, ***Back in the Black***, includes a workbook and a computer spreadsheet that enables users to project the economic impact of several 'what if' management options.

Oltjen has presented ***Back in the Black*** to ranchers at the California Cattlemen's Association Convention and at several locations around the state. He has also trained Extension personnel from California, Nevada, Oregon and Washington to teach the course in their own areas.

Department of Animal Science, UC Davis

HIGHLIGHTS

A PUBLICATION FOR OUR ALUMNI AND FRIENDS

Fall 1996

Department Supports Young Cattlemen's Association

The Department of Animal Science continued its support of the California Young Cattlemen's Association by donating a yearling polled Hereford bull to the YCA Auction held at the annual California Cattlemen's Association meeting in Burlingame on December 4-7, 1996.

The UC Davis Chapter of the Young Cattlemen's Association was established in 1994 and now has 30 student members. Melissa Garrod, a recent Animal Science graduate, was the 1995-96 chair of the statewide YCA. Animal Science student Janice McCord is shown in the photo with the donated bull.

Department of Animal Science, UC Davis

HIGHLIGHTS

A PUBLICATION FOR OUR ALUMNI AND FRIENDS

Fall 1996

Animal Science Faculty Lead Task Force on Animal Agriculture

Four Animal Science faculty members are playing keys role in developing a report on "Contributions of Animal Agriculture to Meeting Global Human Food Demands."

The study is sponsored by the Council for Agricultural Science and Technology (CAST), the consortium of professional agricultural scientist and commodity organizations based in Ames, Iowa, that supports the development of objective information for policy makers on issues important to agriculture.

The study will provide an analysis of the roles of domestic animals in food production systems. The effort is prompted in part by the perception, which has received quite wide circulation in the popular press and elsewhere, that domestic animals compete with humans for food and that animal production should therefore be decreased or even eliminated.

That view overlooks the multiple and complex roles of domestic animals in utilizing non-arable land, crop residues and by-products, in providing food with high-quality protein and essential minerals and vitamins and in numerous other vital contributions.

The 12 members of the task force bring expertise in animal science, veterinary medicine, agronomy, range science economics, resource science and systems analysis. Because of the global nature of agricultural trade and policy issues, the group includes two members from overseas.

The task force members from the UC Davis Department of Animal Science include Eric Bradford, Professor Emeritus and chair of the committee; R.L. Baldwin, Sesnon Professor of Animal Science; J.W. Oltjen, Animal Management Systems Specialist; and J.G. Fadel, Associate Professor.

The Task Force is scheduled to complete its report in about a year.

Department of Animal Science, UC Davis

HIGHLIGHTS

A PUBLICATION FOR OUR ALUMNI AND FRIENDS

Fall 1996

12th Annual Horse Day

Approximately 450 people attended the Animal Science Annual Horse Day Symposium on October 12, 1996, on the UC Davis campus.

Among the morning speakers was Dr. Sue McDonnell, a world-renowned equine behaviorist and Director of the New Bolton Center for Equine Behavior at the University of Pennsylvania Veterinary School.

In the accompany photo, Dr. Craig London, co-owner of the Rock Creek Pack Station in Bishop, CA, demonstrates horse packing equipment while Animal Science student Josette Arrayet assists.

Animal Science professor Jan Roser and Dr. London have planned a 7-day Horses Husbandry and pack trip in the Sierra wilderness for August 10-16, 1997. For more information call Dr. Roser at (530) 752-2918 (e-mail: jfroser@ucdavis.edu)

Department of Animal Science, UC Davis

HIGHLIGHTS

A PUBLICATION FOR OUR ALUMNI AND FRIENDS

Fall 1996

Sheep Show Team Wins with Grand Champion Ewe

The 1996 Sheep Show Team, consisting of Leanna Ackerman, Tami Blake, Debra Dietz, Jessica Wendler, Jenny Whitaker, Cheryl Williams and Greg Ahart, Advisor, tasted success last April at the 1996 Purple Circle in Turlock as they exhibited their Grand Champion Ewe and a class-winning ram. Jessica Wendler (left) and Debra Dietz (right) are shown here with the winning ewe.

The UC Davis team also participated in shows at the Great Western, Senior Cow Palace and Dixon Ram Sale.

Show team members are involved in all phases of the programs: selection, management, training, preparation, entries, promotion, industry interaction, marketing and exhibition. A group of enthusiastic students is already busy making plans for the 1997 season.

Department of Animal Science, UC Davis

HIGHLIGHTS

A PUBLICATION FOR OUR ALUMNI AND FRIENDS

Fall 1996

Action Jackson Joins Department

With long ears and a raucous bray, Action Jackson, a Spanish Mammoth Jack, has taken up residence at the Animal Science Horse Barn. Action joined the department through the collective efforts of Patrick Blacklock, a Master of Agriculture and Management student, and Dan Sehnert, Animal Science Facilities Coordinator.

With a mutual respect for mules they felt that UC Davis could serve a niche market for equine enthusiasts by providing a mule or two at the department's annual foal auction. It was not until they contacted Pat Downing, owner of Cadillac Ranch in Murieta, however, that their idea gained momentum.

Mr. Downing, an avid mule breeder, not only donated an initial breeding but also has generously allowed the Animal Science Department to stand Action Jackson at the UC Davis Horse Barn. Historians may note that the present Horse Barn was originally titled the Mule Barn and housed mules for the university's farming operations. With the addition of Action, a little bit of heritage is restored within the department.

In addition to siring mules for the department, Action Jackson will be available for outside breeding. Those interested in breeding their mares to Action should contact Ken Taylor at the UC Davis Animal Science Horse Barn (530) 754-4156 or e-mail at kentaylor@ucdavis.edu.

Lindsey Hassell, Animal Science student and Foal Manager intern, is shown presenting "Abby," a yearling thoroughbred filly at the 1996 Animal Science Horse Production Sale. Dan Macon, Animal Science alumnus, volunteered his time as auctioneer. Abby was sold for the high bid of the day at $2300.

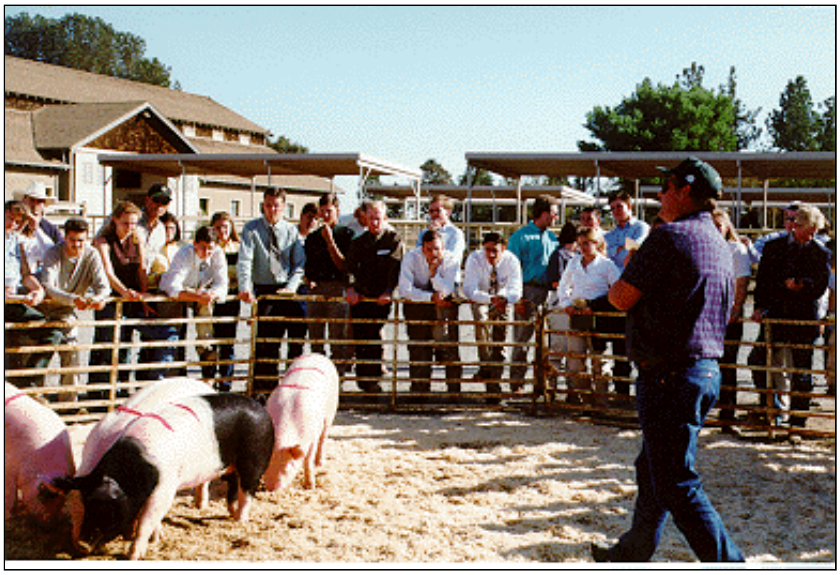
Department of Animal Science, UC Davis

HIGHLIGHTS

A PUBLICATION FOR OUR ALUMNI AND FRIENDS

Fall 1996

Community College Field Day



The 13th Annual Community College Judging Field Day was held on campus on October 11, 1996. The department's Animal Science Judging Team coach, Dana Van Liew, hosted the event with help from Animal Science & Management students.

Eighty-eight agriculture students from California, Oregon and Nevada participated in this year 's event with Modesto Junior College earning the High Team Award. A junior division was again offered to permit participation by the State Champion 4-H and FFA teams from all three states.

The Field Day concluded with an Awards Ceremony and BBQ at the Animal Science Teaching Facility.

Department of Animal Science, UC Davis

HIGHLIGHTS

A PUBLICATION FOR OUR ALUMNI AND FRIENDS

Fall 1996

Animal Science Honors its Grads

Each June the Department of Animal Science honors its Bachelor of Science Degree candidates with a reception in the breezeway of Meyer Hall following the commencement ceremony. Students and their families and friends are greeted and congratulated by faculty and staff.

Left, Professor Trish Berger talks to graduating senior, Tamara Citron at last year's event.

[BACK] [NEXT] [TABLE OF CONTENTS]

Department of Animal Science, UC Davis

HIGHLIGHTS

A PUBLICATION FOR OUR ALUMNI AND FRIENDS

Fall 1996

Ross Memorial Scholarship

Several years ago, William and Marie Ross established an Animal Science scholarship in memory of Greta Breedlove-Ross, their daughter-in-law and former Animal Science student, who was accidentally killed with her husband in Yosemite National Park when a large limb fell on their open tour bus.

Shown are the 1995 and 1996 recipients of this scholarship, Andrew White and Andrea Mongini, respectively, along with former UCD Chancellor, Jim Meyer (left) and Mr. and Mrs. Ross (right).

Department of Animal Science, UC Davis

HIGHLIGHTS

A PUBLICATION FOR OUR ALUMNI AND FRIENDS

Fall 1996

High School Students Visit Campus

Each year UC Davis sponsors Preview Day so high school students can visit the campus to learn about the many opportunities available. This all-day event is regarded as one of the campus' major recruitment efforts.

The Department of Animal Science once again participated in this event on Saturday, October 26, 1996, by hosting a table at the Majors Faire.

Animal Science Peer Advisor Clover Bench (seated in foreground) and Animal Science Master Advisor Professor Graham Gall (seated behind Clover) were on hand to answer questions raised by prospective students and their parents.

Department of Animal Science, UC Davis

HIGHLIGHTS

A PUBLICATION FOR OUR ALUMNI AND FRIENDS

Fall 1996

Notable Notes

1996 Marriages:

- Brandt Kreuscher, Manager of the Animal Science Dairy Facility, was married to Joelle Herring on July 20.
- Carole Wallace, secretary in the Main Office, was married to Howard Burnside on October 5.
- Deanne Morse, Extension specialist, married Trent Meyer on November 10.

The 1996 Livestock Judging Team entered five competitions from January to March, 1996 and came home with three top-ten finishes:

- 8th place in the Arizona National
- 7th at Fort Worth
- 3rd at the Great Western.

In the fall, undergraduates Christine Aguiar, Stacey Pettigrew and Cheryl Williams earned individual honors at Los Angeles, Medford and the Cow Palace. Four additional junior team members placed in the top ten overall at Medford while competing against 60 students from seven agricultural colleges.

Dr. Agustin Oribuela, Research Coordinator for the Ministry of Education in the State of Morelos, **Mexico**, is spending September 1996 to august 1997 working with Department Chair Edward Price conducting research on the sexual and maternal behaviors of sheep and goats.

Professor Graham A. E. Gall was honored with two awards during a recent trip to Manila, the **Philippines**. For the past five years he has served as chair of an expert advisors' panel for a United

Nations Development Program project, "Genetic Improvement of Farmed Tilapia (GIFT)," designed to develop fish breed-improvement technology programs for Asian aquaculture.

The first award was given, it says, "in recognition of his invaluable efforts and significant contributions as Chairman of the UNDP External Advisor Panel Review Team, for his unwavering belief and support of the GIFT project, and for sharing with the GIFT team his scientific expertise and wisdom."

The second award was given to acknowledge an inspiring international career and reads, "in recognition of his outstanding contribution to applied hsh breeding research and significant role in steering strategic research agendas on applications of genetics in aquaculture."

The awards were presented jointly by the International Center for Living Aquatic Resources Management, Manila; the Freshwater Aquaculture Center, Central Luzon State University, Munoz, Nueva Ecija; the Philippines National Freshwater Fisheries Technology Research Center, Bureau of Fisheries and Aquatic Resources, Munoz, Nueva Ecija; and the Institute of Aquacultural Research in Norway.

Department of Animal Science, UC Davis

HIGHLIGHTS

A PUBLICATION FOR OUR ALUMNI AND FRIENDS

Fall 1996

Student Recruitment Targets Young Leaders

Dana Van Liew, Student Recruitment Specialist for the Division of Animal Biology in the College of Agricultural and Environmental Science, and a group of outstanding undergraduate students have crisscrossed the state this past year in search of future Cal Aggies.

Young people who have demonstrated leadership potential have been targeted as top prospects. The recruitment team attended numerous county fairs and youth livestock exhibitions and visited many high school and community college agriculture programs.

They hosted booths at major agricultural events including the Tulare Farm Equipment Show, Junior Cow Palace and the FFA State Leadership Convention. In addition, approximately 100 4-H leadership students attending the State 4H Conference at UC Davis this summer toured the campus animal facilities.

Please write or call Dana at (530) 752-9703 or 752-0744 if you would like to recommend a prospective student. His e-mail address is dbvanliew@ucdavis.edu. **You may also use the form on the last page of this issue of Highlights**.

Department of Animal Science, UC Davis

HIGHLIGHTS

A PUBLICATION FOR OUR ALUMNI AND FRIENDS

Fall 1996

Admitted Student Program

The Department of Animal Science's Admitted Student Program, established in 1995, is a tool to recruit prospective students who have been admitted to UC Davis in one of our department majors but who have not yet made a final decision to come to the campus.

The two-hour program consists of presentations about the department and campus by the master advisors and advising associate and a tour of some of our animal facilities. Time is provided for prospective students and their parents to interact with faculty in a relaxed and informal atmosphere.

In early spring of l 996, the department sent out invitations to 265 admitted students. Twelve faculty members, five undergraduate students and two staff members offered the program eight times between April 4 and 19 to 60 students and their parents (about 150 people total).

Fifty of the participating students (83%) subsequently enrolled in one of the Animal Science majors. This compares with about a 50% enrollment rate of admitted students (not participating in this program) in previous years.

Department of Animal Science, UC Davis

HIGHLIGHTS

A PUBLICATION FOR OUR ALUMNI AND FRIENDS

Fall 1996

Animal Science Undergraduate Enrollment Soars

The Department of Animal Science welcomed 16l new students (freshman and transfers) for fall quarter, 1996. Together with continuing students, they bring the current number of undergraduate students in the Department's two undergraduate majors to 547, an increase of about 90 students (20%) over last fall's enrollment. Undergraduate enrollment in the College of Agricultural and Environmental Sciences increased 4%.
