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Louisiana
State
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School of
Veterinary
Medicine

Equine
Health
Studies
Program

*Dedicated to the
Health, Well-Being and
Performance of Horses
through Veterinary Research,
Education and Service*

Spring 2004

Governor's Biotechnology Initiative Grant Propels Equine Health Studies Program

Lameness and poor performance are two of the most common reasons horses are admitted to the Equine Clinic of the LSU Veterinary Teaching Hospital & Clinic. Diseases of injuries of the musculoskeletal system are the major cause of wastage and poor performance in racehorses. It is estimated that there are over 200,000 horses in Louisiana and the equine industry contributes approximately \$1.4 billion annually to the State's economy. With installation of slot machines at Delta Downs, Louisiana Downs, and Evangeline Downs and with those soon to be installed at the Fair Grounds, the Thoroughbred and Quarter Horse racing industries have begun to flourish. The infusion of slot

machine revenue into purses and breeders' awards has re-invigorated the racehorse industry. This has led to more and better quality horses traveling to Louisiana for racing at one of the four racetracks and more mares being bred and foaled in the state. The increased number of horses traveling to Louisiana for activities related to the racing and breeding industry coupled with the increased number of horses coming to the State for other equestrian activities has resulted in an increased need for the availability of state-of-the-art, advanced veterinary care. Besides the increased number of horses with illnesses or injuries that

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Jean Burt Establishes Estate Gift to Support LSU Equine Program

Jean Pfeiffer Burt of Hilton Head Island, South Carolina, has made a planned gift that will benefit the Equine Health Studies Program at the LSU School of Veterinary Medicine.

Her estate will provide for a \$600,000 gift to the LSU Foundation to establish the Jean P. Burt Fund. This fund will be used to support and benefit the programs and activities of the LSU Equine Health Studies Program (EHSP), including scholarships for veterinary students and faculty support.

When the Jean P. Burt Fund is established, the equine lameness building will be named the Pfeiffer-Burt Equine Lameness and Performance Evaluation Unit.

"Mrs. Burt's legacy gift will



Mrs. Jean P. Burt

provide tremendous support to our equine program. LSU has made great strides to propel the EHSP to the status of an elite equine biomedical center. By making this estate gift, Mrs. Burt

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Director's Message

Greetings from the LSU Equine Health Studies Program! I hope that everyone had a good 2003 and that you are on your way to having a healthy, productive and prosperous 2004. I would like to highlight some of the many advances and accomplishments the Equine Health Studies Program (EHSP) made in 2003 and some of the events and activities we have initiated in 2004.

Our third annual stallion service auction was successful in raising over \$10,000 toward construction of our new 10-stall equine intensive care unit. This multiple-breed, internet-based, benefit auction provides a great opportunity for stallion owners to showcase their stallions and for mare owners to obtain breeding services to top quality stallions at potentially reduced prices. We thank those individuals and farms who participated and we invite others to participate in next year's auction. This is a win-win opportunity for everyone.

Acquisition of capital outlay and recurring annual funds through the Governor's Biotechnology Initiative (GBI) Grant has already begun to have a major impact on the EHSP. We have hired additional clinical and research personnel, renovated and equipped laboratory space into state-of-the-art facilities and

constructed the Equine Lameness and Performance Evaluation Unit. These developments have positioned us to conduct leading-edge equine musculoskeletal research and to become an elite equine biomedical program.

Acquisition of an annually recurring, dependable source of funds for the EHSP through the legislative process last year has already had a major impact in propelling us forward with our mission of becoming a premier equine biomedical program. Combined with the opportunities afforded us by the GBI grant, the legislative funds from tax revenue generated from slot machines at race tracks have enabled us to support leading edge research, obtain state-of-the-art research and clinical equipment, make renovations to our clinic and research facilities, and provide superior educational opportunities for our veterinary students, advanced studies students (interns, resident and graduate students) and the horse-owning public. The EHSP funds have helped to support research involving uterine smooth muscle contractility and abortion, placentitis, extracorporeal shockwave therapy, laminitis, endotoxemia, herpesvirus and heaves, among others.

Through charitable gifts from our friends and supporters and from proceeds on fundraising activities,

we were able to generate substantial funds to help move our program forward. I would like to acknowledge and thank Ms. Jean



Dr. Rustin M. Moore

Burt for her tremendous generosity and support toward the Equine Lameness and Performance Evaluation Unit. Without her generosity, we would not have had the grand opening of this wonderful facility. I would also like to once again thank everyone who has provided charitable contributions toward the Equine Intensive Care Unit. This is finally a reality! We officially broke ground on this facility on January 26 and the project is progressing nicely. This vitally important state-of-the-art facility will enable us to provide efficient, advanced veterinary care to the ever increasing number of critically ill and injured adult horses and foals that are admitted to the Equine Clinic.

Once the Equine ICU is completed, our fundraising efforts will be focused toward acquiring sufficient funds to construct a new 10-stall Equine Isolation Unit, which is used to house critically ill horses with infectious and potentially contagious disease such as salmonellosis and strangles among others. This new state-of-the-art facility will replace our current two-stall isolation unit, and will enable us to more effectively and safely treat horses with these conditions. The two-stall facility is not sufficient at times to accommodate all horses that need to be admitted, and in order to maintain the safety and well-being of the other hospitalized horses, we sometimes have to deny admission. However, with the size of the new unit, we should have sufficient space to accommodate all equine patients with infectious and

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Equine Health Studies Program



Dr. Rustin M. Moore *Director, Equine Health Studies Program*

Dr. Michael G. Groves *Dean, School of Veterinary Medicine*

Dr. Peter F. Haynes *Executive Associate Dean*

Ginger Guttner *Editor*

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Director's Message ...

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potentially contagious disease.

We continue to make advancements to the large animal clinic. We have renovated the stalls and provided a fresh coat of paint to all areas of the facility. We acquired a CT (computed tomography) unit, which will enhance our diagnostic imaging capabilities for horses. We acquired a focused extracorporeal shock wave unit that enables us to provide this service clinically for patients with selected musculoskeletal conditions. Additionally, this enables us to conduct much needed research studies to determine the safety and efficacy of this therapeutic modality. Through funds provided by the School's administration, we have also installed new rail fencing in our paddocks adjacent to the Equine Clinic and the new Lameness Unit. This project not only improves the aesthetics on the west side of the School, but provides us with practical, "equine friendly"



Dr. and Mrs. John Ransom of Whisperwood Ranch in Little Rock, Arkansas, hosted a fundraiser for the Equine Health Studies Program in August 2003. Guests visited with LSU equine faculty members, while enjoying a barbecue dinner and silent and live auctions. Arkansas committee members: (l-r) Dr. Cliff Peck, Mrs. Deane Peck, Dr. Gary Winseck, Dr. Mike Pallone, Dr. Karen Pallone, Marty King, Dr. Sonya LaVergne, Dr. Rene LaVergne, Dr. Larry Nafe, Laura Nafe, Dr. Joan Nafe, Dr. John Ransom, Mrs. Kathy Ransom.

paddocks.

I would like to invite everyone to attend our Fifth Annual Kentucky Derby Party, which will be held on May 1st from 3:00 – 6:00 pm in the

Clubhouse at the Country Club of Louisiana. Come experience the 130th "Running of the Roses" Louisiana style and enjoy the derby cuisine, mint juleps, silent auction and other excitement.

On behalf of the School and the EHSP, I would like to thank you for your continued support. As you can see, our program is making steady progress toward reaching our goal of becoming one of the elite equine biomedical programs in the country. We could not have accomplished what we have thus far without our friends and supporters, and we will not be able to continue this progress without your ongoing support. If you have ideas and suggestions for improvements or would like to donate your time and/or resources to helping us achieve our mission, please contact me. The future of the equine industry in Louisiana looks very bright and the EHSP will continue to be there to help promote and sustain the health, well-being and performance of horses through veterinary research, education and service.



Dr. Rustin Moore, Dr. Alex Valdes, Tim Cotter, Dr. Wayne Waguespack, Dr. Ann Chapman, Dr. Sara Lyle, Dr. Martin Vidal and Dr. Jill Johnson attended the Champions Day races and celebration at The Fair Grounds Race Course in New Orleans as guests of Dr. Jay Addison and the Louisiana Veterinary Medical Association Equine Committee.

Mike Strain Chosen Distinguished LSU Veterinary Alumnus

State Rep. Mike Strain (LSU 83) received the School of Veterinary Medicine Distinguished Alumnus Award at the 72nd Annual Conference for Veterinarians, Veterinary Technicians and Support Personnel on September 13, 2003.

Dr. Strain has practiced veterinary medicine for 20 years and has served in the Louisiana House of Representatives since 2000. He and his wife Susan (LSU 84) own and operate the Claiborne Hill Veterinary Hospital in Covington, Louisiana.

Dr. Peter Haynes, executive associate dean, said, "There has not been a more tireless champion for the veterinary profession and the School of Veterinary Medicine, or a more unselfish individual in serving his community and state. He is most deserving of this award."

Dr. Strain worked very closely with the Louisiana Legislature and

the School of Veterinary Medicine over the last two years in reestablishing funding for the LSU Equine Health Studies Program (EHSP). His diligence culminated in the successful passage of House Bill 88, which he authored, to restore EHSP funding to \$750,000 annually from racetrack slot machine revenue.

From 1996-2001, Dr. Strain served on the board of directors of the Louisiana Veterinary Medical Association and was president of the organization in 2000.

He served 17 years with the St. Tammany Parish Sheriff's Office Reserves and was very active as a Commissioner for St. Tammany Parish Fire District 12.



Dean Michael G. Groves (left) presents the Distinguished Alumnus Award to State Rep. Michael G. Strain, D.V.M.

Dr. Strain was recently appointed to the St. Tammany Parish Emergency Preparedness Planning Committee. He was one of three veterinarians chosen from Louisiana to train in bioterrorism awareness sponsored by the Centers for Disease Control through the Center for Food Security and Public Health, Iowa State University.

Third Annual Stallion Service Auction Raises Over \$10,000 to Aid Equine Intensive Care Unit Fund

The Equine Health Studies Program (EHSP) held its third multiple-breed, Internet-based Stallion Service Auction (SSA) from November to December 2003. Breeding services to more than 150 stallions representing approximately 25 different breeds were donated to the auction by stallion owners from across the United States. All stallion services offered in the auction were intended for the 2004 breeding season, and mare owners could bid on any number of stallion services.

The entire winning bid on a stallion was donated to the EHSP. Over \$10,000 was raised through this benefit auction, which will help with construction of the new 10-stall Equine Intensive Care Unit at the LSU Veterinary Teaching Hospital & Clinics. Bids over the regular stud fees were tax deductible for the mare owners. The donated stallion services were completely tax deductible to the stallion owner, and the farm and stallion benefited from the advertisement on the SSA webpage and in

numerous local, regional and national equine publications.

"The Stallion Service Auction is an incredible opportunity for stallion owners to showcase and market their stallions and their farms while making a valuable and much needed contribution toward the new ICU," explained Dr. Rustin Moore, EHSP director. "Additionally, this auction provides a tremendous opportunity for mare owners to select top caliber stallions at potentially discounted fees."

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LSU School of Veterinary Medicine Offers CT Scanning for Large Animals

The LSU School of Veterinary Medicine is pleased to announce an expansion of its capability to perform Computed Tomography (CT) imaging – also known as “CAT scanning” (Computed Axial Tomography) – on horses, in addition to companion animals.

The Spiral CT Scanner allows veterinarians to see a cross-sectional image – a slice – of an X-ray. Because of this, LSU’s equine clinicians can better evaluate the head and cervical regions, seeing a more detailed, three-dimensional image than could be seen with older technologies.

CT for horses provides for the diagnoses and early and more accurate treatment of such conditions as tumors of the nasal cavity or sinus cavities, soft tissue masses, tooth structure, skull fractures, infectious processes in the mouth, guttural pouch, nasal and sinus cavity, complicated fractures and/or malformations or problems with the vertebrae. CT also allows veterinary clinicians to

evaluate the distal region of the limbs of horses. Joint defects not visible on radiographs can be detected on CT images. Complicated fractures can be evaluated using 3-D capability to accurately reconstruct and repair.

Because of the size of the CT Scanner’s gantry, only the head, neck and distal limbs of large animals like horses can be scanned. Foals, as with smaller animals, have a greater opportunity for more regions to be scanned.

This process requires general anesthesia and takes 15-20 minutes from start to finish, once the animal is positioned for the scan.

“CT allows us to better plan an approach to treatment,” said, Dr. Daniel Burba, equine surgeon with the Veterinary School, “offering us a non-obtrusive, state-of-the-art look inside the animals we treat. We can go straight into surgery from CT, if necessary.”



Stallion Service Auction ...

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“We want to thank everyone who participated in this year’s auction, including individuals donating the stallion services, and the mare owners who participated in the auction, and those lucky persons who were the highest bidders and won the breeding services”, said Dr. Jill Johnson, co-organizer of the auction and the SSA webmaster. “We believe the auction has been a huge success for the EHSP as well as for stallion and mare owners.”

The fourth annual Stallion Service Auction will begin in November of this year. Persons interested in donating stallion services and learning more about the benefit auction should visit the EHSP link at www.vetmed.LSU.edu or contact Dr. Rustin Moore via e-mail at ssa@vetmed.LSU.edu or telephone (225)-578-9500. We will begin accepting donated stallion services for the 2005 breeding season in June of this year.

Equine Health Tips

For more information on several diseases or injuries of horses, please visit our website (www.vetmed.LSU.edu) and click on the EHSP icon. Then click on Equine Health Tips and expand your knowledge.

LSU School of Veterinary Medicine Celebrates Two New Equine Facilities

The LSU School of Veterinary Medicine hosted a Ribbon Cutting Ceremony for the new Equine Lameness and Performance Evaluation Unit and a Ground Breaking for the new Equine Intensive Care Unit on April 2.

LSU School of Veterinary Medicine Dean Michael Groves led the ceremonies. LSU System President William L. Jenkins, LSU Chancellor Mark Emmert, Louisiana Representative Dr. Mike Strain, along with many other friends and supporters of the program were in attendance. Jim Gershey with the Louisiana Board of Regents cut the ribbon, officially opening the Equine Lameness and Performance Evaluation Unit.

The state-of-the-art lameness facility dramatically improves the School's capabilities and efficiency for evaluating lame horses. In addition to a 75' x 125' pavilion with appropriate footing for jogging, lunging and riding horses, the area has new paddock fencing and eventually will house a farrier's room, diagnostic procedures room and two holding stalls.



Ceremonial groundbreaking at the Equine Intensive Care Unit. From left, Dr. David Senior, Sydney Hines, Rep. Mike Strain, LSU President William L. Jenkins, LSU Chancellor Mark Emmert, Dean Michael G. Groves, Dr. Rustin M. Moore, and Michael Robinson.

During the program, the LSU School of Veterinary Medicine recognized major donors. Mrs. Jean P. Burt was recognized for her estate gift to the Equine Lameness and Performance Evaluation Unit. Mrs. Paula Garvey Manship, Gerry Lane Enterprises, Mrs. Jeanne Hines McDaniel, Clear Creek Stud, the R.J.

Biedenharn Foundation, the Hubert Charitable Foundation, the Downman Family Foundation, and Dr. Robert "Bobby" Lewis were recognized for their donations to the Equine Intensive Care Unit.

After the ribbon cutting, there was a ceremonial groundbreaking and tour of the Equine Intensive Care Unit construction area.

Construction has begun on the new 10-stall Equine ICU, which will enable the School to provide comprehensive, advanced veterinary care for the ever-increasing number of horses requiring emergency and critical care services.

These two new equine facilities are part of the LSU Equine Health Studies Program (EHSP). Dr. Rustin Moore, Director of the EHSP, thanked the donors for their support. He also recognized Dr. Peter Haynes, Executive Associate Dean of the School of Veterinary Medicine, for his efforts toward the units and the EHSP.



Equine Lameness and Performance Evaluation Unit

Will My Mare Foal Tonight?

*Dale Paccamonti, DVM, MS
Diplomate, American College
of Theriogenologists*

Gestation length in the mare is notoriously variable. Many of us have spent night after unrewarding night watching and waiting for a mare to foal. Mares have an amazing ability to put everything on hold until things suit them. How many of you have watched a mare all night without any signs of parturition, only to leave for a few minutes to make a cup of coffee and when you get back, there's a foal on the ground?

Dr. John Newcombe in the UK published a report on the time of day that mares foaled. He compared foaling times at two stables. At one stable (Farm A), the mares were turned out on grass at 7:30 a.m. and brought back in at 2:30 p.m. The barn was lighted (to stimulate the nonpregnant mares to start cycling earlier) and mares close to foaling were monitored by closed circuit TV. Activity in the stable stopped by about 4:00 p.m., and

by no later than 5:00 p.m. all was quiet. At the other stable (Farm B), the mares were turned out at 9:00 a.m. and brought back in between 3:00 and 6:00 p.m. The lighting and closed circuit TV monitoring were the same as on Farm A. However, on Farm B, there was a lot of activity until late in the evening, occasionally even after midnight, due to various activities including entertainment of visitors.

On Farm A, 76.6% of the mares foaled between 6:00 p.m. and midnight, 12.8% foaled between midnight and 4:00 a.m. and 10.6% foaled between 4:00 a.m. and 6:00 p.m. On Farm B, 33.3% foaled between 6:00 p.m. and midnight, 44.4% foaled between midnight and 4:00 a.m., and 2.8% foaled between 4:00 a.m. and 6:00 p.m.

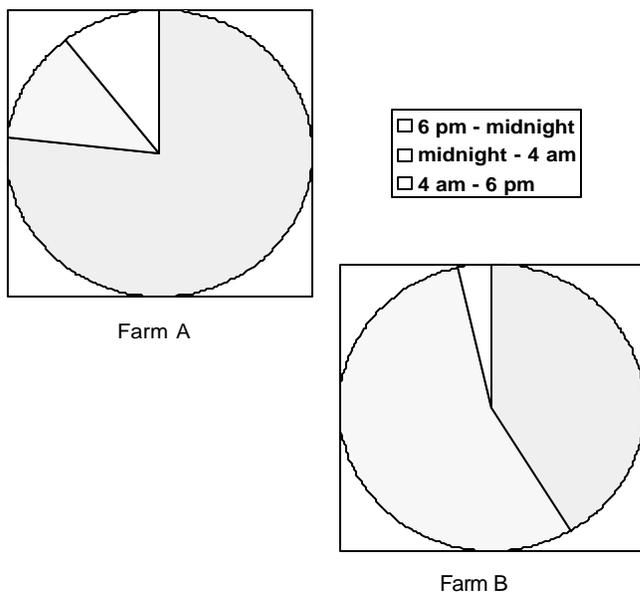
Most of the mares on Farm A, where conditions were quiet after 5:00 p.m., foaled before midnight, with a sharp drop off in foaling after midnight. On Farm B, the peak foaling activity occurred between 11:00 p.m. and 4:00 a.m., after most people

had left. Since the lighting was left on in both stables all night long and was of similar intensity at both locations, the author concluded that the level of activity was the main reason for the later foaling on Farm B, and that mares prefer to foal in a quiet undisturbed environment.

What does this mean to the horse owner? Mares should be left undisturbed, in a quiet environment, when foaling is near. On the other hand, if for some reason you want to delay the onset of parturition, an increase in activity in the mare's proximity can sometimes result in a day or so delay in foaling.

Another question that often comes up is how can you know when you need to stay up and check on a mare through the night and when can you get a good night's sleep, feeling comfortable that the mare won't foal that night? The best method to predict whether a mare is likely to foal on a given night is to check the level of calcium in her milk. In general, tests are more reliable for predicting when a mare won't foal than they are for predicting when she will foal. Of course, one reason for this is a mare's apparent ability to control when she goes into labor, as described above. It is not unheard of for a mare with milk calcium that indicates she is likely to foal after being moved to a new environment where there is a lot of activity, to not foal until two or three days later.

A level of 400 ppm (10 mmol) calcium indicates that the mare is ready to give birth. The level of calcium can easily be measured using a water hardness test kit. However, use of water hardness



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Will My Mare Foal ...

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test kits is not without potential problems. You need to be careful regarding the testing method used and interpretation of the results.

Many kits test for divalent cations, which includes magnesium as well as calcium. Magnesium begins to increase earlier than calcium, the rise is more gradual and it often declines at parturition. Because of this slower, earlier rise in magnesium, water hardness tests, which do not differentiate between magnesium and calcium complicate interpretation of results. The type of test is not critical; however, those that test for only calcium will have a better predictive value.

At Louisiana State University Veterinary Teaching Hospital & Clinics, we use a water hardness test kit named "Titrets" made by Chemetrics in Calverton, VA (1-800-356-3072) that is designed to measure calcium carbonate in water. We dilute the milk using 1 ml milk and 4 ml water. We then add 1 drop of indicator solution to the diluted milk and slowly, little by little, add the diluted milk with the indicator to the glass tube containing the reagent. When the solution in the tube turns a nice blue, the number on the side of the tube is then doubled to give results in ppm calcium. The company markets the same test for mares milk but the directions use a different dilution and the resulting numbers do not give you a true indication of ppm calcium.

Another factor to consider in the interpretation of milk calcium tests is the rate of change. In general, the more rapid the rise, the more imminent is foaling. For example, a mare that has had calcium levels of 200, 195, 225, 225, 250, 250 and 550 ppm over the last week is more likely to foal that night than a mare that has had calcium levels of 200, 225, 250, 300, 325, 375 and 425 ppm. Calcium levels can also change rapidly during the day. A mare may have milk calcium of only 300 ppm in the morning and over 700 by evening. Therefore, obtaining a sample for testing should either be done twice daily or late in the day to better predict that evening's events.

Care of the Pregnant Mare Before, During and After Delivery

*Sara K. Lyle, DVM, MS,
Diplomate American College
of Theriogenologists*

Management aspects of the pregnant mare can be divided into three phases: (1) care during gestation, (2) periparturient care, and (3) care during the immediate post-partum period.

CARE DURING GESTATION Nutrition and Housing

Pregnancy alone does not place any additional nutritional requirements on the mare until the last trimester, assuming that the mare is not in work or does not have a concurrent medical condition. The NRC recommendations for energy requirements during the 9th, 10th, and 11th months of pregnancy are 11%, 13%, and 20% above maintenance requirements. It is extremely important to avoid weight loss during late pregnancy because of the detrimental

consequences of negative energy balance on lactation and fertility after foaling. It is also important not to allow mares to become too obese. Nutritionists have suggested a relationship between obesity in the broodmare and developmental orthopedic disease in the foal. In addition, obese mares tend to have a less effective abdominal press during foaling, prolonging foaling and increasing the stress on the foal during delivery, which could lead to perinatal complications.

Unless there are complicating factors (e.g., severe lameness, recent surgery, etc.), it is best to keep mares on pasture throughout gestation. The incidence and severity of colic, stocking up of the lower limbs, and ventral midline edema are reduced when mares are not confined to a stall. Whenever possible, pregnant mares should be isolated from the remainder of the horses on the farm and

grouped by stage of pregnancy. Mares who are poor-keepers or rank low within the herd hierarchy may need to be fed separately from the herd and/or supplemented. Contact with weanlings and yearlings, transient individuals, and those active on the show or performance circuit increases the risk of exposure to infectious agents that may cause abortion.

Herd Health Concerns

Pregnant mares should be maintained on a regular anthelmintic (deworming) schedule. Farms with parasite resistance problems should pay special attention to anthelmintic rotation programs, fecal egg counts, and pasture management. Your veterinarian should be consulted to help develop the most appropriate anthelmintic program for your

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Pregnant Mare ...

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farm. The majority of equine anthelmintics available today are labeled as safe for the pregnant mare, but it is always wise to read the label before administering any drug to a pregnant mare. It is especially important to avoid anthelmintics containing organophosphates in mares during pregnancy.

Pregnant mares should be vaccinated against herpesvirus abortion (rhinopneumonitis) at the 5th, 7th, and 9th months of gestation. Farms with constant traffic on and off the farm or a sizeable population of young stock should begin vaccination at 3 months of gestation. At 10 months (approximately 30 days before the estimated due date), mares should receive their annual vaccinations: tetanus toxoid, eastern and western equine encephalitis (EEE/WEE), West Nile virus, herpesviruses I and IV, influenza, and rabies. In endemic areas or farms, vaccines for Potomac horse fever, botulism, and strangles should be considered and discussed with your veterinarian. Mares not previously vaccinated for botulism should have the initial series at the 8th, 9th, and 10th months. Vaccinations administered one month before foaling help increase the level of antibodies against these diseases in the mare's colostrums, which is essential to help decrease the morbidity and mortality during the foal's first few months of life.

Dental examinations should be performed on mares on an annual basis. Although it would be preferable to avoid dental procedures during pregnancy, this is not always feasible due to the time constraints during the breeding season. If mares are

identified that are extremely difficult to float their teeth, then it would be best to schedule these mares after foaling, but prior to re-breeding.

PERIPARTURIENT CARE

Pre-Foaling Considerations

A clean, well-kept grassy paddock is probably the ideal environment for foaling. Since it is difficult to adequately supervise mares for impending delivery when they are housed outside, most mares are housed in stalls at night when they are nearing their due date. The preferred bedding for foaling stalls is straw. Wood shavings or chips are more likely to lead to bacterial contamination of the uterus during parturition with an increased incidence of umbilical cord infections. If the mare has had a Caslick's procedure performed after breeding, the vulva needs to be surgically opened when she is close to foaling. This can be done in the last two weeks of gestation, preferably when the udder appears to be fully developed. Opening of the Caslick's suture

helps to prevent tearing of the perineum.

Udder development, relaxation of the pelvic ligaments, lengthening of the vulva, and waxing of the teats are physical changes that signal a mare is close to foaling. The average gestation length of the mare is 340 days, but ranges from 320-360 days. The maturity of the fetus determines the overall length of gestation (e.g., 330 vs. 350 days), but the mare dictates the day of delivery (e.g., 338 vs. 340 days). She can delay labor until she feels the circumstances are safe. That usually means when no one is watching! This is believed to be a holdover from the non-domesticated equid. Wild horses and other equids leave the band at night to foal, deliver the foal and placenta, and then rejoin the band when the foal is able to keep up with the herd. Eighty-five percent of mares foal between 7 p.m. and 9 a.m.; and the majority of these foal between 11 p.m. and 4 a.m.

Measurement of milk electrolytes is frequently used to

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Normal foaling with the foal's foot encased in the intact amnion. (Image courtesy of the theriogenology section of the University of Georgia College of Veterinary Medicine).

Pregnant Mare ...

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identify mares that are nearing parturition. Milk calcium and potassium increase and sodium decreases when the fetus is mature. Most mares will foal within a day or two of when these changes occur, but occasionally a mare may delay foaling for a longer period of time. Usually there is no problem, but it is advisable to assess fetal viability. A common question is how frequently should the mare be observed when she appears close to foaling.

Unfortunately, the answer is 100% of the time if the attendant plans on being present for the delivery. Labor is extremely rapid (less than 30 minutes), and if a problem develops, a favorable outcome (live foal and live mare) can only be achieved if

assistance is there from the start of labor. Fortunately the incidence of dystocia, premature placental separation, or other problems is low, so that we can get away with only looking at the mare every 1 to 2 hours. A variety of monitoring systems are available, but regardless of which system is used it is worthless if it is not combined with an attendant that can be at the mare's side within minutes.

NORMAL FOALING

3 Stages of Labor

Stage I lasts between one and four hours and is characterized by the mare's restlessness, sweating,

frequent urination and defecation, getting up and down, and kicking and looking at her flanks. Mares may show all or none of these signs. During this time, uterine contractions begin, and the fetus begins to make positional changes within the uterus in preparation for delivery. By the end of Stage I, the foal has changed its position from lying on its back with all limbs flexed to lying on its stomach with extended forelimbs, head and neck. The frustrating aspect of foaling mares



Premature placental separation ("red bag") where the placenta is intact with the foal's foot inside of membranes.

is that they may appear to be in Stage I, and then fail to progress to Stage II. In other species this usually signals that a problem exists, but this is fairly typical for the mare. If possible, and only if it does not disturb the mare, the tail should be wrapped and the perineum cleansed prior to delivery.

Stage II begins with rupture of the placenta (chorioallantois) and release of allantoic fluid. The lay term is "break water" and is frequently missed or mistaken for urination. Allantoic fluid is amber-colored and odorless. From this

point until the foal is delivered, strong abdominal contractions continue. Most mares will lie down, but a few may try to foal standing, especially if nervous or disturbed by observers. Usually within five minutes of chorioallantoic rupture the amnion bulges from the vulvar lips. It is whitish-gray, smooth, and glistening. Soon after the appearance of the amnion, a foot (still inside the amnion) will pass the vulva, followed by the other foot and finally a nose. The feet

are normally passed in this staggered manner (approximately offset by 4 inches). This facilitates the shoulders to fit through the pelvic canal. If the amnion is still intact and the foal's head is out, the amnion should be cleared from the foal's nostrils. Care should be taken not to upset the mare and disrupt the progression of foaling. The strongest abdominal press is

apparent while the foal's shoulders are being passed; once the shoulders are outside the pelvic canal, the foal tends to "squirt out" to the level of the hips. Most mares will take a rest at this point and lie quietly with the foal's hindquarters still inside the pelvic canal. The umbilical cord breaks on its own when either the foal or the mare struggles to stand. When premature placental separation occurs, the placenta fails to rupture ("red bag"), and a red velvety membrane is seen instead of the amnion, and no release of allantoic fluid occurs. The

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Pregnant Mare ...

(Continued from page 10)

attendant should immediately verify that this is the chorioallantois, cut it, and assist delivery of the foal. There is no time to wait on a veterinarian to arrive. Any delay almost always results in a stillborn or extremely weak neonate that often succumbs in the early postnatal period.

Stage III occurs with the passage of all of the fetal membranes (chorioallantois and amnion) and involution of the uterus. The placenta should be expelled within 3 hours of parturition. The placenta should be removed from the stall and saved for the attending veterinarian to inspect. This evaluation can yield much information regarding the environment in the uterus and future neonatal health. Some mares will act mildly colicky during this period, which is usually due to continued uterine contractions. A veterinarian should evaluate excessive signs of discomfort, especially if she becomes unconcerned about the foal. If the placenta has not been passed within 3 hours, oxytocin (10-20 units IM) should be given, with injections repeated at 1-2 hour intervals until the placenta is passed. The earlier the treatment with oxytocin is begun, the better the response. Absolutely do not pull on the membranes because this can cause damage to the uterine lining. If the placenta has not been passed within 6 hours, then broad-spectrum antibiotics and non-steroidal anti-inflammatory agents are recommended. Mares with retained placenta are often predisposed to metritis (uterine infection), toxemia and laminitis (founder).

POST-PARTUM CARE

Immediately after foaling the mare usually experiences a tranquil period, during which time bonding with the foal is believed to occur. External stimuli can disrupt this process and in severe cases may lead to the mare rejecting the foal. Therefore, caution and common sense should be exercised during the immediate post-partum period to facilitate bonding of the mare and foal.

Because the neonatal foal spends much of the time lying down, bedding that is soiled with fetal fluids should be removed. Routine care of the neonate includes dipping of the navel (3% iodine or chlorhexidine), careful administration of enemas as needed, and a veterinary neonatal exam, including a physical examination, antibody (IgG) determination, and a complete blood count should be performed. It has become popular to "imprint" the foal during the early post-partum period. If this procedure causes extreme upset of the mare, the value gained is not worth the risk of foal rejection.

If the mare and foal are healthy, the foal has normal legs, and as soon as weather permits, it is beneficial for the mare's uterine involution and gastrointestinal tract motility to turn the pair out into a clean grassy paddock. For the first 7-10 days after parturition, it is best to turn them out separate from other mares and foals, after which they can be turned out with other mare-foal pairs with foals of similar ages. If the foal has an immature musculoskeletal system (especially of the knees and hocks), then turnout should be delayed until bony ossification (mineralization) is complete.

New Faces at LSU

R. Wayne Waguespack, DVM, MS, Assistant Professor, Equine Surgery, originally from Birmingham, Ala., graduated from Tuskegee University College of Veterinary Medicine, completed an internship in large animal medicine and surgery at the University of Georgia, and then completed an equine surgery residency and MS degree at Auburn University. Dr. Waguespack, a board-certified veterinary surgeon, has clinical interests in soft tissue and orthopedic surgery. He also has several research interests, including studying the role of inflammation in the pathophysiology of laminitis (founder) and potential ways to prevent and treat this devastating disease, as well as the effects of extracorporeal shockwave therapy on tendon and ligament healing. He started at LSU in September 2003.

Mandi J. Lopez, DVM, Ph.D., Assistant Professor, Equine and Comparative Orthopedics, was born and raised in the Pacific Northwest. She attended veterinary school at the University of California, Davis and then completed an internship at Kansas State University prior to going to the University of Wisconsin, where she completed a residency in large animal surgery and both MS and PhD degrees. Her area of interest and expertise is comparative orthopedic research and surgery. She is board-certified by the American College of Veterinary Surgeons. She started at LSU in January 2004 and will head the Laboratory for Equine and

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Faces ...

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Comparative Orthopedic Research. Dr. Lopez brought with her from the University of Wisconsin an ongoing NIH grant, which will aid in the immediate establishment of her laboratory.

Maxon McKean, Associate Clinical Specialist, Weekend Equine ICU Technician, began working at the Equine Clinic in January 2003.

Gretchen Morgan, Associate Clinical Specialist, Equine Medicine and Surgery and Scintigraphy Technician, began working at the Equine Clinic in September 2003.

Becky Campbell, Associate Clinical Specialist, Equine Medicine and Surgery Technician, began working at the Equine Clinic in November 2003.

Kasey Dickey Kirkland, Lab Animal Care Assistant, Equine Medicine and Surgery Technician, began working at the Equine Clinic in November 2003.

Tonia Duncan, Large Animal Cashier, began working at the Equine Clinic in February 2004.

People in the News

Dr. Marilyn L. Rumbaugh, a former resident in equine surgery, successfully completed all parts of the certification examination of the American College of Veterinary Surgeons, and is now a board-certified specialist in large animal surgery. She completed her residency in June 2003 and is currently in private practice in an equine hospital in Edmond, Okla.

Tau Chapter of the Society of Phi Zeta Hosts Research Emphasis Day

The Tau Chapter of the Society of Phi Zeta, the honor society for veterinary medicine, held its annual Research Emphasis Day on September 24, 2003. The objective of the Society is to recognize and promote scholarship and research in matters pertaining to the welfare and diseases of animals.

"The goal of the Phi Zeta Research Emphasis Day is to promote research in veterinary medicine and other biomedical research, to recognize the veterinary research being conducted at LSU, and to encourage veterinary students to pursue careers in veterinary scientific investigation", said Dr. Thomas R. Klei, Associate Dean for Research and Advanced Studies at the LSU School of Veterinary Medicine (SVM).

The day began with Dr. Andrew Lackner, director of the Tulane National Primate Research Center (TNPRC) and Professor of Microbiology, Immunology and Pathology at the Tulane Health Sciences Center, speaking to the general session on "Nonhuman primates in biomedical research: Current studies at the TNPRC." This was followed by a two-hour research poster viewing session where 50 research posters were presented by faculty, advanced studies students, veterinary students and undergraduate students representing the SVM's three academic departments.

Drs. Lackner and Rudolf Bohn, Jr. gave a seminar on "Summer research opportunities at the TNPRC" to veterinary students interested in this area of veterinary medicine.

Dr. Joel D. Baines, Associate Professor of Virology at Cornell

University College of Veterinary Medicine, was the keynote speaker and presented "Envelopment of herpes simplex virus nucleocapsids at the nuclear membrane" to the general session.

The 36 posters presented by doctoral students (PhD) and non-doctoral students (MS or DVM) were judged by a panel of eight faculty scientists from LSU, the LSU Agricultural Research Center, and the National Hansen's Disease Program Research Laboratories. First, second and third place were awarded in both categories.

The posters pertaining to research in the horse are listed below with the presenting author listed first:

Curtis LA, Moore RM, Eades SC, Truax RE, Stokes AM, Garza F: The role of endothelin-1 and nitric oxide in equine laminitis and their association with endotoxin using digital endothelial cell culture.

Polikepahad S, Moore RM, Koch CE, Holmes EP, Venugopal CS: Role of epithelium in summer pasture-associated obstructive pulmonary disease (SPAOPD) induced airway hyperresponsiveness in horses.

Polikepahad S, Moore RM, Vanden Heuvel J, Venugopal CS: Pharmacological characterization of endothelin receptor responses of bronchi in clinically healthy horses and those affected with SPAOPD.

Costa LRR, Truax R, Henk W, Blackmer JJM, O'Reilly KL, Moore RM: Culture of primary epithelial and transformed equine airway cells under air-liquid interface conditions.

Costa LRR, Eades SC, Garza F, Koch CE, Moore RM: Quantitative determination of endothelin in arterial and venous plasma samples from horses affected with summer pasture-associated obstructive pulmonary disease during remission and clinical exacerbation.

Lewis AJ, Natalini CC, Pettifer

(Continued on page 13)

Phi Zeta ...

(Continued from page 12)

G, Hosgood G: The cardiopulmonary effects of epidural administration of hydromorphone in standing and anesthetized horses.

Watson DM, Walesby HA, Barker SA: In vivo distribution and elimination of 20% phenylbutazone solution administered orally to fasted horses.

Wallace EL, Stokes AM, Paulsen DB, Eades SC, Moore RM: Presence and distribution of matrix metalloproteinase-2 and -9 immunohistochemical staining in laminae of clinically healthy and laminitic horses.

Breaux LM, Hubert JD, Burba DJ, Hosgood G: Effects of focused extracorporeal shock waves on osteonal density, osteonal activity and mineral apposition rate after osteostixis in equine third metacarpal bone using flurochrome bone labeling.

Liford J, Blackmer JM, Lyle S, Moore RM, Nickerson CA, Honer zu Bentrup K: Immunofluorescent detection of matrix metalloproteinase-2 and -9 in three-dimensional tissue assemblies of microgravity-cultured equine fetal laminae cells: A preliminary study.

Bolt DM, Burba DJ, Hubert JD, Strain G, Hosgood G, Cho DY, Henk WG: Functional and morphological changes in palmar digital nerves following extracorporeal shock wave application in horses.

Sod G, Martin GS, Gill MS: Pullout strength and orthopedic screws in polymethylmethacrylate filled medullary cavities of foal third metacarpal bones.

Sod G, Martin GS: An in vitro biomechanical comparison of a prototype intramedullary pin-plate with a dynamic compression plate for equine metacarpophalangeal arthodesis.

Venugopal CS, Wilson S,

Dequent E, Polikepahad S, Moore RM: Response of bronchial smooth muscle to neurokinin-A in clinically healthy horses and those affected with summer pasture-associated obstructive pulmonary disease.

Baudena MA, Chapman MR, Horohov DW, Taylor HW, Klei TR: Equine intestinal cellular and cytokine responses to cyathostome infestations.

Walesby HA, Eilts BE, Venugopal CS, Eades SC, Moore RM: The role of endothelin-1 in the contractility of non-gravid equine myometrium in vitro.

Walesby HA, Eilts BE, Venugopal CS, Eades SC, Moore RM: The role of tumor necrosis factor-alpha in modulating contractility of non-gravid myometrium to endothelin-1 in vitro.

McConnico RS, Hubert J, Juneja P, Celedon A, Moore RM: Clinical findings in horses administered oral phenylbutazone for 21 days.

Blackmer JM, Liford J, Henk W, Borkhsenius O, Paccamonti D, Moore RM, LeBlanc C, Nickerson C: Development of three-dimensional tissue assemblies of equine fetal laminae cells under microgravity conditions.

Stokes AM, Savoie D, Eades SC, Garza F, Keowen ML, Moore RM: Quantification of laminae microcirculatory perfusion in normal horses using isotopic-labeled microspheres.

Lay Articles

Burba DJ: **The dilemma of bucked shins in the racehorse.** *Louisiana Horse*. Fall 2003, 68-70.

Burba DJ: **Extracorporeal shockwave therapy: The new wave in treatment of equine musculoskeletal disorders.** *Off Course, Southern Eventing & Dressage Association* 20-21, Nov-Dec 2003.

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Blackmer JM: **Strategies for prevention of neonatal isoerythrolysis in horses and mules.** *Equine Vet Educ Manual* 6: 5-10, 2003.

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Roberts M, Pechman R, McConnico RS: **What's Your Diagnosis; Pneumothorax in a gelding.** *J Am Vet Med Assoc*, 223 (5) 617-618, 2003.

Rumbaugh RI, Burba DJ, Natalini C, Hosgood G, Moore RM: **Evaluation of a vessel-sealing device for small intestinal resection and**

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Vet Surg 32 (6) 574-579, 2003.

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Polymethylmethacrylate beads for treating orthopedic infections.
Compend Contin Educ Pract Vet 25 (10) 788-795, 2003.

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Day of cycle affects changes in equine intrauterine pressure in response to teasing.
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How to use the transverse facial venous sinus as an alternative location for blood collection in the horse. *Proceedings Am Assoc Equine Pract* 49: 259-261, 2003.

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Drs. Marina Sansinina, Claudio Natalini, Rustin Moore, Ashley Stokes, and Jeremy Hubert attended the World Equine Veterinary Association Symposium in Buenos Aires, Argentina.

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Lyle SK, Blackmer JM: Development of a three-dimensional culture system for equine endometrial and chorionic cells. LSU-SVM Department of Veterinary Clinical Sciences Organized Research Funds, October 2003.

Stokes AM, Eades SC, Moore RM, Bueno AC: Use of an endothelin antagonist for prevention of equine laminitis. \$61,320. Morris Animal Foundation.

Venugopal CS, Moore RM, Polikepahad S, Pillai S: Pharmacological and molecular characterization of pulmonary equine endothelin-B receptors. \$22,500. LSU Equine Health Studies Program, November 2003.

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Walesby HA, Truax RE, Blackmer JM, et al: Equine myometrial cell culture: A model for the study of the pathogenesis of preterm fetal expulsion secondary to endotoxemia. \$10,000. LSU-SVM USDA 1433 Formula Funds, 2003.

Watson DM, Walesby HA, Barker SA: In vivo distribution and elimination of 20% phenylbutazone solution administered orally to fasted horses. \$4,000. LSU-SVM Merck-Merial Summer Scholars Program, 2003.

Governor's Biotechnology Initiative Grant ...

(Continued from page 1)

require emergency medical and surgical care, the increased number of horses residing or passing through the state has led to a commensurate increase in the number of horses that develop conditions causing lameness and poor athletic performance. It is these conditions that often have an important and substantial negative economic impact on the horse racing industry and other facets of the equine industry in the state.

Researchers and clinicians in the LSU Equine Health Studies Program recognized the vital importance of these athletic horse injuries to the overall health and vitality of the Louisiana equine industry and submitted a grant for the Governor's Biotechnology Initiative grant program in the autumn of 2002. Receipt of capital outlay and recurring annual funds from the Governor's Biotechnology Initiative Program for enhancing basic and applied equine musculoskeletal research has already begun to have a dramatic impact on the LSU Equine Health Studies Program, which should translate into major advances and improvements for the equine industry. These advancements should propel us toward our goal of becoming one of the elite equine biomedical programs in the country.

Acquisition of capital outlay funds through the Governor's Biotechnology Initiative Grant enabled us to move forward with construction of our new Equine Lameness and Performance Evaluation Unit, which was recently completed. Our grand opening took place on April 2. This facility is vitally needed to

facilitate efficient and effective evaluation of the many horses that are admitted to the Equine Clinic for evaluation of lameness and poor performance. We are sure that horse owners, trainers, breeders and enthusiasts are just as excited as we are that horses will no longer have to be evaluated among the trucks and trailers in the parking lot. We invite you to visit the clinic and view this new state-of-the-art facility.

Acquisition of recurring annual funds through the GBI grant also enabled us to hire additional clinical and research personnel, which is vital to help advance our program. Dr. Wayne Waguespack, a board-certified surgeon, was hired as an Assistant Professor of Equine Surgery, and will not only provide service in the Equine Clinic, but will integrate his research involving laminitis into our existing team of laminitis researchers. Dr. Waguespack brings experience and expertise in the application of molecular biologic techniques to the study of laminitis, particularly as it pertains to the up-regulation of inflammatory and vasoactive mediators in laminitis. Dr. Mandi Lopez, a board-certified surgeon and PhD scientist, was hired as an Assistant Professor of Equine and Comparative Orthopedic Research to develop and head the Laboratory for Equine and Comparative Orthopedic Research. Her expertise in comparative orthopedic research and surgery will have an immediate impact on our equine research program as well as other comparative and translational orthopedic research in the School and across the LSU campus. Dr.

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Governor's Biotechnology Initiative Grant ...

(Continued from page 16)

Lopez brought with her from the University of Wisconsin an ongoing NIH grant, which will aid in the immediate establishment of her laboratory. It is anticipated that she will soon expand this source of funding.

Dr. Ashley Stokes was hired as a post-doctoral fellow after completing her PhD, and she continues to play an integral role in equine laminitis research. Dr. Sharon Chirgwin, a post-doctoral fellow, is supported in part by the GBI grant. She will use her expertise in molecular biology to help provide the necessary guidance and training to other equine researchers with the integration of molecular biologic techniques into their existing and on-going equine research. Drs. Stokes and Chirgwin played major roles in the preparation of three grants submitted by the EHSP to the USDA-NRI for 2004, which collectively totaled more than \$1.5 million. Funds from the GBI have also helped to support five advanced studies students (three doctoral students, one intern and one resident) and two research associates.

Funds from the capital outlay and recurring annual portions of the GBI have enabled us to completely renovate our equine research facilities, including the Equine Tissue and Cell Culture Laboratory, Equine Physiology Laboratory, Laboratory for Equine and Comparative Orthopedic Research and the Equine and Comparative Biomechanics Laboratory. These state-of-the-art research facilities complement the Equine Lameness and Performance Evaluation Unit, the Equine High-Speed Treadmill

facilities, and the Veterinary Teaching Hospital's Equine Clinic along with other existing research facilities. The newly renovated laboratory facilities have been equipped with state-of-the-art equipment for conducting and integrating cell and tissue culture studies, molecular biologic techniques and biomechanical testing into leading-edge equine and comparative biomedical research.

The research personnel, facilities and equipment provided through the GBI funds along with other funding through the School of Veterinary Medicine and the funds recently acquired through the slot machine legislation will provide equine biomedical scientists the environment and opportunity to successfully compete for the limited extramural research dollars that are available from federal and state funding agencies, private foundations and other funding agencies. In a very short period of time, the Equine Health Studies Program has used these funds in an attempt to leverage other funds that will continue to enhance the research and clinical programs that will ultimately improve the health, well-being and performance of horses. These funds are being used successfully in advancing the program toward the goal of becoming and maintaining the Equine Health Studies Program.

Burt Estate Gift ...

(Continued from page 1)

expresses a commitment to the future of LSU's equine program," said Dean Michael G. Groves.

Initial construction of the covered pavilion with appropriate surfaces for lameness and performance evaluation was completed in December 2003 and was funded through a Governor's Biotechnology Initiative grant received by EHSP scientists in November 2002. The grant provided research funding for equine lameness and musculoskeletal disease, the leading causes of poor performance in athletic horses, accounting for millions of dollars spent in diagnosis, treatment and prevention.

"While originally intended to fund construction of the equine lameness facility, Mrs. Burt's estate gift will provide for the continuation of our leading-edge research, contemporary education and comprehensive, state-of-the-art diagnostic and therapeutic capabilities for critically ill and injured horses," said Dr. Rustin M. Moore, EHSP director. "This gift will ensure that we can continue optimal clinical service to horsemen in Louisiana and the surrounding region."

When completed, the 125 x 75-ft. lameness facility will contain a farrier's room, examination and diagnostic room, and two holding stalls.

Mrs. Burt and her late husband, William, owned a cattle ranch in Hailey, Idaho, and lived in Maui, Hawaii, prior to moving to Hilton Head. The family has been avid horse enthusiasts. Mrs. Burt's granddaughter, Lauren Ashley Beebe, is a 2003 graduate of the LSU School of Veterinary Medicine.

Charitable Gifts

Major Gifts

We would like to thank **Ms. Sydney Biedenharn** and **The RZ Biedenharn Foundation** for their generosity and support of the Equine Health Studies Program (EHSP). They have given a \$4,000-\$5,000 charitable gift to the EHSP the last three years. These gifts are helping with the construction of the new Equine Intensive Care Unit.

The EHSP would like to thank **Ms. Francois "Francie" Stirling** and her family for their generosity and support. The board of directors of the **Downman Family Foundation** has provided a \$10,000 charitable gift in 2002 and a \$14,000 gift in 2003, which are helping with construction of the Equine Intensive Care Unit. Ms. Stirling is a long-time friend and supporter of the EHSP.

The EHSP would like to thank one of its distinguished alumni, **Dr. Robert "Bobby" D. Lewis**, and his wife, **Dr. Nancy M. Lewis**, for their generosity and support in providing a \$5,000 gift the last two years to help support the mission and goals of the EHSP, including construction of the new Equine Intensive Care Unit.

We would like to thank the **Louisiana Veterinary Medical Association (LVMA) Equine Committee** for their \$10,000 gift, which is the first of six installments they have pledged toward establishment of an endowed LVMA professorship. The eventual \$60,000 gift will then be matched by the state to establish the \$100,000 endowed LVMA

Equine Committee Professorship in Veterinary Medicine.

Memorial Gifts

- Ms. Shelly Liles and Ms. Amy Bonin in memory of Mr. Ray Thibodeaux.
- Dr. Andrea and Mr. Robert J. Millette in memory of Mr. Shane Ladner.
- Dr. Ashley Geoghegan in memory of her brother, Deke.
- Dr. Julie Cabbage of the Acadiana Equine Clinic, Inc. in memory of "Gal," a Quarter Horse mare owned by Amy Dore.
- Dr. Julie Cabbage of the Acadiana Equine Clinic, Inc. in memory of "Pana's Gold," a 15-year-old Quarter Horse mare owned by Teddy & Michelle Wyatt.
- Dr. Julie Cabbage of the Acadiana Equine Clinic, Inc. in memory of "Magic," a 12-year-old Quarter Horse mare owned by Philip & Margaret Elliott.
- Dr. Kristin Barbera of the Acadiana Equine Clinic, Inc. in memory of "Quackie Due" owned by Allen Aguillard.
- Dr. Dina Duplantis in memory of "Rebel", a 34-year-old pony gelding owned by Charlotte Blanchard.

Charitable Contributions

- Dr. Allison Barca and Denny Stable
- Ms. Diane Wahlquist
- Dr. G. J. Abdalla, Beauregard Veterinary Clinic, Inc.
- Dr. Marlon B. Brantley, Union Veterinary Clinic
- Mr. Michael Carringer

- Drs. Gary and Chris France, Pea Ridge Veterinary Clinic
- Dr. Craig Fontenot & Dr. Ricky Landreneau, Town & Country Equine Clinic
- Dr. G. J. Abdalla, Beauregard Veterinary Clinic, Inc.
- Dr. Laura L. Freeman
- Mr. Richard E. Hatfield
- Dr. Robert H. Henderson, Pine Ridge Veterinary Clinic, LLC
- Dr. Rustin M. Moore
- Mr. & Mrs. Stanley Gibson on behalf of their daughter, Ms. Maura Gibson
- Ms. Mandy Moore
- Dr. Cliff Peck
- Dr. John and Kathy Ransom, Whisperwood Ranch
- Mr. Barry Thomas
- Ms. Laura Vaught
- Drs. Carol and Donnie Vice, Dixie Equine Hospital

Corporate Support

James Pellerin, area representative for **Fort Dodge Animal Health**, has arranged to provide vaccine for West Nile virus, Fluvac (EHV, tetanus, influenza, WEE, EEE, VEE), and intranasal strangles vaccine for the teaching and research horses in the LSU EHSP herd.

Dr. Frank Hurtig, manager, Equine Veterinary Professional Services, **Merial**, provided Eqvalan Gold (a combination of ivermectin and praziquantel) dewormer for the teaching and research horses in the LSU EHSP herd.

Dr. Rocky Bigbie and **Fort Dodge Animal Health** provided a \$500 gift to help support the mission and activities of the EHSP.



YOU Can Take Equine Health Studies

“Full Stride into the Future”

Did you know?

- Your tax-deductible charitable contribution to the Equine Health Studies Program will be used to support leading-edge equine scientific investigations, equipment needs, improved facilities and student scholarships in equine studies at the LSU School of Veterinary Medicine.
- We accept gifts of cash, stock or property, which may be made by cash, check or credit card.
- You may direct your gift to a specific project, or allow us to choose the area of greatest need.
 - Equine Health Studies Program/Most Pressing Need
 - Equine Isolation Unit
 - Equine Research Studies

If you would like information about gifts of stock or property, bequests in wills or formation of a charitable trust, contact the Office of Institutional Advancement, LSU School of Veterinary Medicine, Baton Rouge, LA 70803, (225) 578-9870, email: pedwards@vetmed.lsu.edu or visit our website: www.vetmed.lsu.edu.

YES! I would like to contribute to the Equine Health Studies Program at the Louisiana State University School of Veterinary Medicine. Enclosed is my tax-deductible contribution of:

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Baton Rouge, LA 70803**

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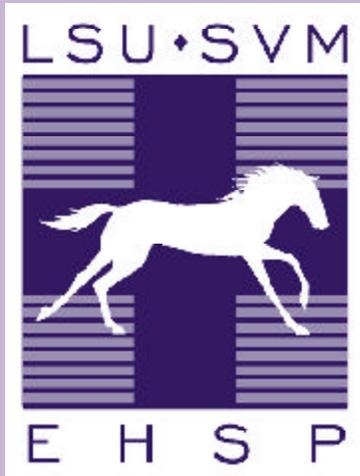
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*Dedicated to the
Health, Well-Being and
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through Veterinary Research,
Education and Service*

Spring 2004



Members and friends of the LSU Equine Health Studies Program posed for a photo at the School's third annual Barkin' on the Bayou Gala at the Swamp at the Audubon Zoo in New Orleans. Seated (l-r) are: Erica Wallace, Leslie Talley, Dr. Ashley Stokes, Judi Gerhardt, Becky Bynum and Dr. Lisa DiBernardi. Standing (l-r) are: Dr. Wayne Waguespack, Meaghan Gilhooly, Dr. David Bolt, Dr. Etta Bradecamp, Dr. Mandi Lopez, Dr. Britta Leise, James Batiste, Sydney Hines, Dr. Rustin Moore, and Becky Rutledge.



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