

CEH HORSEREPORT

A publication of the Center for Equine Health, UC Davis School of Veterinary Medicine

Reproduction and the Cycle of Life

Few sights are as moving as the birth of a new foal, or its persistent attempts to stand on all four legs so it can begin to nurse. It's a miracle every time. It is also the culmination of an extended process that begins long before the birth. A number of factors can affect a mare's ability to conceive, maintain a healthy pregnancy and produce a healthy foal, including proper nutrition, preventive medicine, a routine program of parasite control and exercise. Although infertility or subfertility may occur because of pathological problems, management practices that influence the environment in which a mare lives can significantly affect her reproductive success.

Most mares begin their broodmare career at approximately 5 years of age, when horses are generally considered mature. The health condition of a mare should first be determined by a veterinarian to ensure there are no abnormalities of the reproductive tract. The first step in a prebreeding exam is to evaluate the mare's apparent physical condition. Does she reflect good health? Will she require any special treatments before being bred? Will she physically be able to carry a foal to term?

A veterinarian should

Normally, it is a beautifully coordinated and controlled event in which the fetal foal passes through the mare's birth canal and begins its life of independent status.



examine the mare to determine the proper functioning of the ovaries, including the development of follicles, ovulation, and general reproductive soundness.

Reproductive examinations of both mares and stallions should be carried out in the fall of each year so that any problems can be diagnosed and corrected well ahead of the foaling and breeding seasons. Special emphasis should be placed on the stallion's general health, soundness of the musculoskeletal system (particularly the hind limbs), libido, reproductive system (penis and testicles), and quality of the sperm.

Many mares have foals yearly for up to 15 consecutive years, after which fertility begins to decline. Broodmares are sometimes prone to declining fertility because of injuries

to the reproductive tract and endometrium (lining of the uterus). In general, the more foals a mare has had, the more likely she is to eventually have fertility problems.

— Continued on page 3

INSIDE THIS ISSUE...

Director's Message.....	2
The Foaling	6
Colic and the Late-Term	
Pregnant Mare	8
Rowan Fellowship Award	10
CEH Aids Sister Schools	
In Wake of Katrina	11
Recommended Reading	12

DIRECTOR'S MESSAGE



Dr. Gregory L. Ferraro

Those of us at the UC Davis School of Veterinary Medicine who are involved with horse care often get calls from people inquiring about breeding their mares. While many are from experienced breeders regarding specific fertility or reproductive problems, many others are from first-timers who have never bred a mare or raised a foal. These individuals or families often call with questions of the "how to" type, or worse yet, the "what now" variety. Because these inquiries consistently arise each spring, we thought that a discussion of these matters in the fall issue of our *Horse Report* might just give these readers a head start in thinking about whether, when and how to enter the field of equine reproduction.

Since many excellent magazine articles and books have been written on the subject of horse breeding, we will not attempt to provide you with an A-Z manual on the subject. Rather, we present a discussion of some basic reproductive issues to consider as well as

A Stitch in Time Saves Nine

several problematic areas or potential risk factors that can lead to reproductive failures. These are presented for you to understand, think about and plan for ahead of time so that you are well prepared in case things go awry. While only about 2% of all pregnant mares encounter problems in foaling, if your mare is one of that group it's 100% your problem.

We expect that as you read through the material that follows you will generate many questions. You may, in fact, find yourself somewhat fearful, confused or downright overwhelmed. That's good!

The best and most important thing you can do if you want to breed your mare is to find a good veterinarian and establish a working relationship with him or her.

Better now than at 2 AM some Saturday in April. Our purpose here is to stimulate your thinking, encourage you to learn, and get you started on your plan of action well in advance of events, thereby increasing your chances of a happy outcome.

As every journey begins with the first step, so I will start you on your way with the first bit of advice: *The best and most important thing you can do if you want to breed your mare is to find a good veterinarian and establish a working relationship with him or her.* One thing about the breeding and foaling of mares that is consistently true is that you can't do it alone, and the best help you can get is from your local veterinarian. Start right

now, don't wait until spring. Ask around, talk to some breeders in your area. Find out which local veterinarians are known for their reproductive skills and experience. Call them on the phone, ask some questions and see if they might be right for you. Can you establish a rapport with him or her? Can they answer your questions? Do you feel comfortable working with them?

Next, have them come to your place and examine your mare, inspect your farm and ask you questions: Are you sure you know what you are getting into? Do you realize that you do not have the best facilities for

foaling a mare? Are you willing to devote the time and effort required to raise and train a foal?

Once all that is out of the way and you and your veterinarian have become comrades, the fun can begin. It is important that you become informed about each step in the process, because each step is important. Read all you can about equine reproduction ahead of time, listen and discuss what you read with your veterinarian and follow his/her guidance. Remember, forewarned is forearmed! You can handle it if you're well prepared. All the best, and don't forget to think of a name for the foal.

Reproduction*— Continued from page 1***Breeding Options**

Two breeding options are available: natural cover and artificial insemination. Natural cover breeding entails a higher risk of injury to the mare and/or stallion, particularly if the handlers are not familiar with the procedure or the temperament of either the stallion or mare. This method of breeding may also require that the mare be shipped to where the stallion resides—the more common practice in the U.S.—or that the stallion be transported to where the mare resides. The cost of boarding a mare where the stallion resides should be factored into the cost of breeding to a specific stallion.

Artificial insemination is becoming more common as a method of breeding for a number of reasons. Foremost are that shipping the chilled semen for insemination of the mare reduces the risk of transportation injury as well as the risk of injury to mare, stallion and handlers during breeding. Other advantages include the convenience of collecting semen at any time of the day and storing it (by freezing) for later insemination. This procedure also decreases the spread of disease. The stallion should be subject to the same tests as if he was to mate with each mare naturally to ensure that the ejaculate he produces is free from pathogens that could be transferred to the mare. Note that two horse registries do not allow for artificial insemination—Thoroughbred and American Miniature.

Determining Pregnancy

The first exam to determine pregnancy should occur at about 14 days after a mare has been bred. The exam is usually performed by ultrasonography. If the mare is not pregnant, she will come back into heat at approximately 18 days or earlier. In determining the success of pregnancy, it is also important to determine the presence of one or more embryos, since most mares will not be able to carry twins to term. If two embryos are present and the mare is allowed to carry them, she will usually abort during the latter stages of pregnancy (8-10 months). Technological advances have enabled veterinarians to eliminate one of the twins successfully in the very early stages (14-18 days) of pregnancy.

Once pregnancy is confirmed, the next exam is usually performed at around 25 days after breeding to confirm the presence of one viable embryo. In this exam, the embryo's heartbeat is evaluated. Since most early embryo losses tend to occur by 45 days, pregnant mares are examined again at 45 days and sometimes again at 60 days. Most mares confirmed to be pregnant at 45 to 60 days will carry a foal to term. However, it is generally accepted that about 10% of pregnant mares will lose their foals after 60 days due to various causes of abortion or fetal death.

The gestation period for a mare is considered to be 340 ± 5 days, or approximately 11 months. This period varies as a mare becomes older. Some older mares may have gestation periods up to 12 months.

Monitoring Pregnancy

Fetal well-being is not checked as routinely as it is in humans but is most commonly evaluated if the mare is ill (colic, stress, chronic pain) or if there are signs of impending abortion, unusual vulvar discharge, or premature distention of the mammary glands. Again, ultrasonography is used to evaluate fetal development. The fetus may be evaluated against baseline measurements for total size of the developing fetus (from crown to rump) and established parameters for number of heartbeats, size of the orbit, aorta and so forth. While it is not usually feasible to determine whether defects of the fetus are present, ultrasound evaluation can determine if a fetus is viable. If problems are suspected or if the mare has had placental problems in previous pregnancies, fetal health may also be monitored by electrocardiogram (ECG).

Proper Care and Feeding of a Pregnant Mare

Foaling problems can be minimized by keeping the mare in good condition throughout pregnancy. Good management techniques will help ensure optimum well-being for both the mare and foal during pregnancy, foaling and after birth.

Housing. Pregnant mares are normally kept separate from other groups of mares because they tend to be susceptible to infections that cause abortions. However, if a number of pregnant mares are healthy and properly vaccinated, they can reside together. The decision

— Continued on page 4

Reproduction**— Continued from page 3**

as to when to move a mare to a foaling stall depends on the facilities available. If the mare can be moved several weeks before her due date, it will allow her to become adjusted to her new environment. Mares due to foal during the warmer summer months may be left to foal outside in small foaling paddocks. Consistent temperature in any situation is important. Keep in mind also that as pregnant mares increase in size and width, they are more prone to injury from narrow doorways. Sliding doors are commonly seen on larger farms for this reason.

Exercise. Some level of moderate exercise is important for the mare, regardless of how close to foaling she is. Self-exercise by being turned out in a paddock is ideal, but if the mare needs to be stall-rested for any

reason, walking in-hand each day is essential. Throughout pregnancy, the fetus is dependent on the circulating blood from the mare for all its nutritional needs. Exercise will increase the flow of blood to all the organs, especially the placenta, enriching the fetus with nutrients and oxygen. Edema and stiffness of the lower limbs is very common in the later stages of pregnancy and exercise will help to ease the discomfort that this may cause.

Nutrition. It is important to maintain pregnant mares in good condition throughout the entire pregnancy, as this will provide the foal with the optimum environment in which to develop and allow the mare to recover more quickly post-foaling. Generally, normal amounts of good quality hay (alfalfa, timothy, grass or a combination of all) are fed to a pregnant mare until the last trimester, when nutritional demands increase and do not peak until after the foal is born

and she is lactating. During this last trimester (8-11 months), either grain or pellets can be introduced to each feeding until the mare foals, although if the mare maintains a proper weight throughout the pregnancy, supplementation of feeds may not be necessary.

The old theory of feeding for two should be disregarded, because an overweight mare may experience more problems in the latter stages of pregnancy, such as edema and stiffness of the limbs. Excessive weight will also put more stress on vital organs that are already working at peak levels to provide for the pregnancy.

Parasite control. Parasite control is a vital part of horse management, regardless of the status of the horse. A mare with a heavy worm infestation will be compromised in many ways. Nutritionally, it causes stress on the circulatory system with migrating parasites causing minor hemorrhages and aneurysms, putting the mare at increased risk for colic and further complications. Mares with infestations will also put their newborn offspring at risk because a foal has no resistance to parasites. Prevention is key.

It is important to establishing a worming program with your veterinarian. Pregnant mares should be dewormed every 2 months during pregnancy, at 1 month prior to foaling with ivermectin, and again 1 to 2 weeks after foaling



to control those parasites that are transmitted to the foal through the mare's milk.

Foals should be dewormed every 4 weeks starting at 1 month after birth and continuing until they are a year old because of their increased susceptibility to parasites. The type of parasite control should be discussed with your veterinarian.

Routine care. Routine farrier attention is very important at this time to keep hooves well trimmed and supported. Mares who have a pre-existing or old injury may also experience more discomfort as the pregnancy progresses, and these mares should be continually assessed to avoid the risk of worsening problems.

Vaccinations. Pregnant mares should be protected against late-term herpes-induced abortion by vaccinating with Pneumabort or Prodigy at the recommended 5, 7 and 9 months of gestation. Some farms will vaccinate at 3, 5, 7 and 9 months to obtain optimal protection against herpesvirus infection.

For other vaccinations, the best practice is to vaccinate pregnant mares at the proper time for various diseases so that their foals will receive passive immunity against them and be protected early in life. The specifics of the vaccination for your mare and her foal should be discussed with your veterinarian, because the types of diseases against which mares and foals need protection and the timing of when these vaccinations should be given can vary with individual situations. ✱

Dr. Irwin Liu, Department of Population Health and Reproduction, UC Davis School of Veterinary Medicine

Dr. Irwin Liu, DVM, MPVM, PhD, a professor of equine reproduction in the UC Davis School of Veterinary Medicine, provided much of the information on reproduction in this issue of the Horse Report. He divides his time between teaching, clinical duties and research. His teaching responsibilities include introductory and advanced courses in equine reproduction and contraception in wildlife animal species. He also conducts clinical rotations in equine reproduction for fourth-year veterinary students at the Veterinary Medical Teaching Hospital. As a clinician, he specializes in reproductive diseases of horses and in infertility and subfertility problems. His current research interests are in uterine defense mechanisms of fertile and subfertile mares, sperm function in stallions and mares, and myometrial contractility in the mare. Myometrial contractility, or the spontaneous contraction of the uterine muscles, is an important function in the defense against infection.



Dr. Liu

One of the highlights of Dr. Liu's career was having an unexpected foal named after him. The story goes like this. A 23-year-old mare was having fertility problems after numerous breedings to a known fertile stallion over several consecutive breeding seasons and was brought to Dr. Liu for evaluation. After an extensive examination, Dr. Liu determined that the uterus was severely scarred and degenerated based on a biopsy sample. In fact, he had never seen a uterus in worse condition. He indicated to the client-owner that her mare would never be able to carry a foal to term based on the observation of her severely degenerated uterus.



A paint foal resembling "Liu's Faux Pas"

Saddened, the owner took her mare home and turned her out to pasture to partner with her beloved stallion. Less than a year later, and unbeknownst to Dr. Liu, the client returned to the UC Davis Veterinary Medical Teaching Hospital with her mare--and a foal by its side--only to convey the fact that she had registered the foal as "Liu's Faux Pas." The moral of this story is that sometimes it is better to be lucky than smart!

The Foaling

The birth of a foal is an act in which two individuals participate: mare and foal. It does not occur until both are ready for the event. For the foal, it means being fully mature and capable of adapting to independent life. For the mare, it means having a fully developed mammary gland containing colostrum. To achieve this coordination, there is what can be described as a biological duet between mare and foal. When both individuals are ready for the event, the act of birth is triggered.

Signs of Impending Birth

Although much of the duet is not known in detail, there are recognizable landmarks:

- ♦ Foaling occurs at full term, usually between day 320 and 360 of pregnancy, although there is some variation depending on the individual.
- ♦ Mammary development increases from about 6 weeks before foaling.
- ♦ Within about a week of giving birth, the mare will develop precolostral secretions from the mammary glands.
- ♦ Also close to foaling time, the mare will become restless, she may perspire at the flanks and shoulders, and may look back at her flanks occasionally. She will lie down and get up intermittently—a sign of restlessness and positioning of the foal for proper delivery. She may paw at the ground occasionally. These signs are similar to signs of colic and may be difficult to distinguish from impending foaling.



method for monitoring the foaling of mares.

When the Mare is About to Foal

The water bag containing chorioallantoic fluid is one of two membranes that surrounds the fetus. When the fetus is ready to be born, it strikes the membrane and breaks it with its feet, producing a gush of water from the vulva. The fluid may also contain parts of the membrane. Once the water bag has broken, the foal should be delivered from the mare within a half hour. The mare may break her water while lying down or standing. She will then show signs of straining and shortly after the foal's feet should be seen.

The Birth

Although many mares experience problem-free foalings, serious complications arise in approximately 2% of cases. While the risk may seem low, the types of complications that can occur can be sudden, serious and at times fatal to both mare and foal. Therefore, the best approach is always to have an established relationship with your veterinarian so that if complications or questions arise, he or she is knowledgeable about your mare.

In a normal foaling process, at least one foot should be seen first, followed by the nose or other foot. If only the feet are seen and no evidence of the head, or if only one foot is seen, it is time to call the veterinarian for any potential abnormal presentation. Similarly, if the membrane surrounding the fetus that protrudes out of the mare's vulva during the foaling process is bright or dark red

Preparing for the Foaling

Most horse owners prepare for foaling by having a minimum of 14 ft x 16 ft stall available for delivery. Larger stalls are acceptable and encouraged. Straw or wood shavings are normally used for bedding. While straw is considered the cleanest, it is more difficult for a foal to stand up on straw and easier on wood shavings. A combination of straw and wood shavings is appropriate.

Make sure that the foaling environment is clean. This cannot be stressed enough! The bedding should be fresh and all manure should be picked up. The mare should be washed with gentle liquid soap (such as Ivory) just before foaling, especially around the udder, hind legs and perineum. The most common places for the foal to acquire bacteria leading to illness is on the mare's skin when the foal is searching for the place to nurse.

Video equipment and other monitoring systems are commercially available to view the foaling process over a 24-hr period. Many horse facilities find this to be a convenient and secure

instead of white, the membrane should be severed immediately, before the veterinarian arrives, because it represents premature separation of the placenta and a lack of oxygen being supplied to the fetus. This procedure should be discussed with your veterinarian ahead of time, in case the need arises.

The Newborn

- ♦ Most foals will stand up and attempt to nurse within an hour after birth. However, the range can vary from 15 minutes to 2 hours. It is recommended that the mare's udders, stifles and elbows be washed with gentle liquid soap (such as Ivory), since this is the first exposure of the foal to any potential hostile environment.
- ♦ Immediately after delivery, the foal should have a heart rate greater than 60 beats per minute and a respiratory rate of greater than 40 breaths per minute. After the first hour, the heart rate should rise to 80 to 100 beats per minute, and the respiratory rate to 16 to 35 breaths per minute.
- ♦ A newborn foal should be able to sit up within seconds and develop a suckle response within 2 to 3 minutes of birth. It should be able to stand within 1 hour and nurse within 2 hours. Most foals do both within the first hour.
- ♦ Be aware of and look for signs of prematurity in the foal, such as a silky coat, laxity in the ears and limbs, a domed head, weakness and small size.
- ♦ Check for congenital problems such as cataracts, hernias (umbilical and scrotal) or milk coming out of the nose, which can be a sign of congenital problems involving the palate.

The Placenta

Normally, the placenta is expelled from the mare within an hour after foaling. The placenta

should routinely be examined by a veterinarian for defects and for potential signs of illness in the foal. If a veterinarian is not immediately available after the birth, the entire placenta should be placed in a refrigerator for later examination by a veterinarian. Examination of the placenta can also determine whether there are pieces remaining in the mare's uterus, twinning in cases of abortion, and any infectious process that can be transmitted to the foal.

Occasionally the placenta is not expelled immediately. If it is not expelled within 3 to 6 hours after foaling, a veterinarian should be called since a retained placenta is occasionally, but not always, associated with laminitis. The mechanism by which a retained placenta causes laminitis is not known. In most cases, administration of repeated doses of oxytocin, a uterine muscle contraction agent, will cause the retained placenta to be expelled. If this is not successful, other methods are available.

The First Day

- ♦ Make sure the foal is active and nursing at least four times per hour.
- ♦ Make sure the foal passes meconium (first feces). Many foals need an enema to aid in the passage of the first feces.
- ♦ Make sure the foal urinates by 8 to 12 hours of age.
- ♦ Have your veterinarian check the IgG level to ensure adequate intake of colostrum. If the foal does not receive adequate levels of colostrum, or if it is on a farm that has had *Rhodococcus*, a plasma transfusion may be necessary to prevent illness.
- ♦ The umbilicus should be dipped in 1:4 chlorhexidine (Nolvasan) solution three or four times during the first day or two.
- ♦ Check the foal's legs. If there

is marked contracture, laxity or angulation, do not turn out but keep in large stall and have a veterinarian assess the legs.

- ♦ The foal should have a temperature of 99 to 101.6°F.

After the First Day

- ♦ The foal should be increasingly active and nursing often.
- ♦ Watch for diarrhea. "Foal heat" diarrhea, which is unrelated to the mare's heat cycle (a common misnomer), develops at 5 to 14 days. It is a pasty to loose stool, but the foal should remain bright, active and should continue to nurse well. If it seems depressed, is not nursing or has a fever, call the veterinarian.
- ♦ Be alert to foal pneumonia. The signs include coughing, nasal discharge, rapid respiratory rate, use of abdominal musculature to breathe, and fever. It is very common in young foals. A normal temperature in this age group should be 99 to 101.6°F.
- ♦ At 1 month of age, begin deworming with ivermectin paste. Then alternate every 4 weeks with pyrantel pamoate.
- ♦ Consult your veterinarian for a vaccination schedule. Foals should be vaccinated against West Nile Virus.
- ♦ Consult your veterinarian about nutrition for the foal, as they begin to eat at 10 to 14 days of age. *



Colic in the Late-Term Pregnant Mare

by Dr. Jorge Nieto

Pregnant mares experience abdominal pain quite commonly, although such signs are usually resolved with minimal or nonmedical treatment. These colic episodes are usually brief and mild and may be produced by a vigorous movement of the foal, stretching of uterine ligaments due to the foal movement, or mild intestinal problems such as gas accumulation or constipation. Cases that require surgical intervention are expensive to treat, stressful to the mare, and emotionally difficult for the owner.

In treating a pregnant mare, we are treating two patients: the mare and the foal. This further complicates the situation. The most common causes of colic in the general adult horse population, where colic is the leading cause of death, are problems within the gastrointestinal tract. However, this is not always true in the late-term pregnant mare. The diagnosis of colic in a pregnant mare can be challenging because the uterus and the foal are occupying a good portion of the abdominal cavity, which limits some diagnostic tools, and also because signs of normal parturition can be similar to signs of colic. An assessment of fetal health and an evaluation of the reproductive tract are essential in diagnosing a pregnant mare showing signs of abdominal pain. We recommend serial transabdominal ultrasound examinations to evaluate the fetal heart rate and level of activity, as well as the characteristics of the fluid around the foal.

If a pregnant mare is diagnosed with colic, an important factor to consider is which of the two patients is more important to the

owner, *although we always try to save both*. If the mare is the more important patient, and the fetus is a direct contributor to the problem, an elective abortion or C-section may be indicated in selected cases. If the foal is the more important patient to the client, usually we need to treat both since premature foals generally do not survive as well as premature humans and the mare is a better incubator than the artificial incubators in the intensive care units. If we try to save the foal and induce parturition, the foal must be mature enough to survive.

Another possible complication of colic in pregnant mares is abortion, either after medical or surgical treatment. In a study reviewing colic in pregnant mares, investigators found that there was an abortion rate of 21% after surgery for colic, and that the most significant factors contributing to this were absorption of toxins and intraoperative hypoxia, rather

than the effects of anesthesia. Therefore, mares with problems associated with absorption of toxins should be aggressively treated against endotoxemia. In addition, surgery should be performed quickly to reduce anesthesia time.

Some types of colic seen exclusively in pregnant mares include uterine torsions, rupture of the prepubic tendon, abdominal wall herniations, uterine rupture, abnormal accumulation of placental fluids, rupture of small colon mesentery, and internal hemorrhage from rupture of the uterine artery.

Feed impactions in the large intestine are also commonly seen in pregnant mares and may be a predisposing factor to colon torsion. Although the exact mechanism is not known, it is assumed that the increased size of the pregnant uterus may affect normal intestinal motility and increase the transit time of feed



A pregnant mare in the last trimester of gestation with severe ventral edema and rupture of the prepubic tendon.

material. As a consequence of the feed being in the large intestine for longer time, more water will be resorbed, further drying the ingesta. A direct palpation of the impaction is not always possible because the uterus will occupy most of the caudal abdomen. In the majority of cases, medical treatment, such as oral and intravenous fluids, analgesics, fecal softeners and lubricants, and light exercise will resolve the problem.

Colics resulting from fecal impactions of the large and small colon can be prevented by providing pregnant mares with fresh, clean water, laxative feeds such as grass and mashes, and space for the mare to move about and have some light exercise. It is also important to monitor the amount and consistency of feces produced, especially if the mare is predisposed to feed impactions. Since torsions of the large colon are seen more commonly in mares just before or after parturition, and feed impactions are often a contributing factor, it is important to prevent, detect and treat mares with this problem.

Uterine torsions occur in the third trimester of pregnancy, and mares are usually presented with signs of mild to severe abdominal pain. The diagnosis is based on rectal examination, and the best treatment is surgical correction of the torsion either in the mare standing with sedation under local anesthesia, or under general anesthesia. Depending on the degree of torsion and the duration of the problem, the blood supply to the uterus may be affected, causing fetal death or uterine rupture. However, if uterine torsions are diagnosed and treated early, the prognosis is generally good.

Rupture of the prepubic or abdominal wall muscle is most commonly seen secondary to trauma, the weight of the foal, or excessive accumulation of fluid inside the placenta. In severe cases mares may experience

extreme pain and a reluctance to walk, and an abnormal position of the mammary gland or excessive swelling of the ventral abdomen will be evident. If this problem is suspected, immediately call a veterinarian to have the mare evaluated since it can have severe consequences to both mare and foal.

Advances in surgical, medical and anesthetic techniques in the last decade have allowed veterinarians to improve the treatment, prognosis and survival rate of horses with all types of colics, including those that occur most frequently in pregnant mares. The variety of diseases that can affect the mare in late pregnancy require an early and careful evaluation of the patient to obtain an accurate diagnosis and design the best treatment plan to produce the result we always expect: to save the mare and produce a live, healthy foal. *



Clifton Drew Receives Louis R. Rowan Fellowship in Equine Studies

The California Thoroughbred Foundation has announced that Clifton P. Drew is the 2005 recipient of its Louis R. Rowan Fellowship in Equine Studies. The fellowship provides a \$5,000 cash award for a veterinarian pursuing a PhD in an equine-related medical science at the UC Davis School of Veterinary Medicine.

The Center for Equine Health's director nominates candidates to the California Thoroughbred Foundation (CTF) Board of Trustees, who then selects the award recipient. This fellowship was established by the CTF in honor of its cofounder, Louis R. Rowan. A well-known California breeder who raced Thoroughbred horses throughout the United States, Louis Rowan was one of the founding directors of the Oak Tree Racing Association and a well-respected and progressive horseman.

Dr. Drew is a graduate of Oklahoma State University CVM, Stillwater, OK, and is just completing his second year of residency in anatomic pathology at the UC Davis School of Veterinary Medicine. He will be pursuing a PhD in the Department of Veterinary Pathology, Microbiology and Immunology. His current research involves the development of an *in vitro* assay to identify equine arteritis virus in tissues. This assay should ultimately aid in characterizing the pathogenesis of EAV infection in horses and in localizing the virus in the reproductive tract of persistently infected stallions. Congratulations to Dr. Drew on his achievements!



Center for Equine Health Aids Sister Schools in Responding to Animal Victims of Hurricane Katrina



Horse awaiting rescue in the aftermath of Hurricane Floyd in North Carolina, September 1999.

For several years the Center for Equine Health has maintained an Animal Rescue and Disaster Relief endowment to provide funding for the rescue and treatment of animal victims of disaster and to develop new equipment and techniques that promote saving these animals during such crises. This endowment provides support for the UC Davis Veterinary Emergency Response Team (UCD-VERT) and allocates funds to faculty for research into disaster medicine and critical care.

Hurricane Katrina brought widespread hardship and trauma to thousands of animals in the Louisiana and Mississippi Gulf Coast region. This massive disaster has required monumental efforts on the part of veterinarians and animal caregivers in the area. The need for medical supplies and food rapidly overcame the reserve capacities of both state's veterinary schools, hindering their ability to respond properly. As a result, the Center for Equine Health in conjunction with its research faculty and Dean Bennie Osburn, UC Davis School of Veterinary Medicine, took the unprecedented step of transferring funds from its own disaster relief fund to assist the veterinary schools at Louisiana State University and Mississippi State University.

While our gesture of support is meager in the face of such a burden, we hope that it will set a precedent for other institutions and individuals to follow so that the needs of these animal victims can be met. If you wish to make a donation to assist in Hurricane Katrina animal rescue activities through these schools, please send it to:

Dean Michael G. Groves
Louisiana State University
School of Veterinary Medicine
Baton Rouge, LA 70803

Dean Gregg Boring
Mississippi State University
College of Veterinary Medicine
P.O. Box 6100
Mississippi State, MS 39762

Recommended Reading for the Expectant Horse Owner

One of many good books for the novice breeder is ***The Horse from Conception to Maturity*** by Peter Rossdale and Melanie Bailey, published by J. A. Allen, London (2002). For more challenging reading, we recommend the ***Manual of Equine Neonatal Medicine*** by our own Dr. John Madigan, Live Oak Publishing, Woodland, CA (1997). You can probably borrow this one from your veterinarian.

CEH

HORSEREPORT

©The Regents of the
University of California
October 2005

Center for Equine Health
(530) 752-6433
www.vetmed.ucdavis.edu/ceh

Director:
Dr. Gregory L. Ferraro
e-mail: glferraro@ucdavis.edu

Writer/Editor:
Barbara Meierhenry
e-mail: cehwriter@ucdavis.edu

Management Services Officer:
Katie Glide
e-mail: kaglide@ucdavis.edu

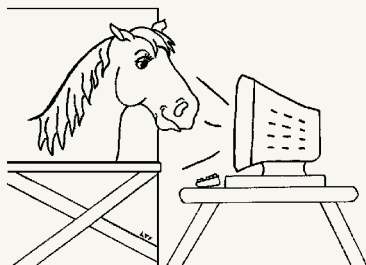
Dean, School of Veterinary Medicine:
Dr. Bennie I. Osburn

The Center for Equine Health is supported with funds provided by the Oak Tree Racing Association, the State of California Pari-Mutuel Fund and contributions by private donors.

The University of California does not discriminate in any of its policies, procedures or practices. The University is an affirmative action/equal opportunity employer.

The information you provide will be used for University business and will not be released unless required by law. To review your record, contact Advancement Services, 1480 Drew Avenue, Ste. 130, Davis, CA 95616. A portion of all gifts is used to defray the costs of administering the funds. All gifts are tax-deductible as prescribed by law.

WHOA, CEH IS ON LINE!



Visit our Web site at
www.vetmed.ucdavis.edu/ceh
If you are accessing the **Horse Report** from our Web site and no longer want a paper copy, just let us know....save us the postage; the horses will benefit! Send an e-mail request to ljchristison@ucdavis.edu

CEH HORSEREPORT

Mail ID#1415
Center for Equine Health
School of Veterinary Medicine
University of California
One Shields Avenue
Davis, CA 95616-8589

RETURN SERVICE REQUESTED

Nonprofit Org.
U.S. POSTAGE
PAID
UC Davis