

# Grazing News



Iowa State University  
Department of Animal Science  
Equine Science Newsletter & Updates

January 2011

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## Happy New Year!!!

Below is new and updated information from Iowa State University Equine Science. If you have questions or comments about this message or the content listed herein, please contact me.

Peggy M. Auwerda, PhD  
Iowa State University Extension Horse Specialist  
E-mail: [peggy@iastate.edu](mailto:peggy@iastate.edu)  
Phone: 515-294-5260



## Upcoming Events

- [Functional Anatomy](#) - January 21st
- [Exercise Physiology of Animals](#) - Stars Jan. 11th
- [High-Risk Pregnancy](#) - February 1st
- [The Growing Horse](#) - February 11th
- [Iowa 4-H and Youth Jamboree](#) - March 26th & 27th
- Block & Bridle Horse Show - April 14th - 18th



2010 Fall MEM 1

## Study on Unwanted Horses

[The Journal of American Sciences](#) has issued a study on **unwanted horses** and their outcomes. The researchers investigated the effect of closing equine slaughter facilities in the U.S. in 2007. The tough economy also has contributed to a sharp increase in the number of unwanted horses throughout the United States, with estimates totaling 100,000 horses per year, according to the report. One hundred forty-four organizations in 37 states accepted almost 8,000 horses from 2007 to 2009. The cost of caring for one of these horses averages \$3,648 a year. From the report: "The estimated maximum capacity for the 326 eligible registered nonprofit equine rescue facilities of 13,400 is well below the widely published estimate of 100,000 horses that become unwanted in the United States every year. Nonprofit equine rescue and sanctuary facilities have historically played an important role in safeguarding the welfare of horses in society, but funding and capacity are limiting factors to their potential expansion in continuing to care for the current population of unwanted and neglected horses in the United States."

## Unwanted Horse Lesson by The Animal Welfare Council

### Introduction

The face of animal welfare is being shaped by factors including the separation of production agriculture from consumers and the anthropomorphization of companion animals by the general population. These trends and the influence of animal rights ideology are creating real changes in the United States regarding industry practices for the traditional use of livestock. A new category of horses has emerged, the "Unwanted Horse," that is now the focus of much discussion; as their numbers surge in a time of economic hardship in this country, the need is great to educate the public in general, and horse owners specifically, about the issue from a factual and historical perspective. The AAEP (American Association of Equine Practitioners) defined unwanted horses as "horses which are no longer wanted by their current owner because they are old, injured, sick, unmanageable, fail to meet their owner's expectations (e.g., performance, color or breeding), or their owner can no longer afford them." The Animal Welfare Council developed this set of lesson plans to provide tools and resources to assist horse industry youth leaders and agriculture teachers to explain this trend and its impacts on horses and animal welfare.

Animal Welfare Council members support the use of animals in recreation, entertainment, industry and sports. The organization is dedicated to advancing the responsible and humane use of animals in these activities. Visit <http://www.animalwelfarecouncil.com> for more information about the Animal Welfare Council.

This six-lesson program guides students through key elements contributing to the rise of unwanted horses in the United States, with the goal of stimulating understanding and potential solutions for the issue. Each lesson includes a teacher's guide with goals, background material, resources for further reading, presentation outline, hand-outs in reproducible format for the students, and a re-enforcing group or independent activity that can be completed either as part of the lesson or as a field exercise. The lessons may be presented in series, as might be used in traditional classrooms or home schooling programs, or independently in youth activity settings such as 4-H, Girl Scouts, or Boy Scouts. A bonus lesson has been included as an overall evaluation tool with questions that can be used in a Jeopardy- style quiz game.

### Lessons 1 - 3

- [Unwanted Horses Lesson Plan Introduction](#) (366 KB)
- [Unwanted Horses Lesson Plan One](#) (1.3 MB)

- [Unwanted Horses Lesson Plan Two](#) (1.6 MB)
- [Unwanted Horses Lesson Plan Three](#) (1.2 MB)

## Lessons 4 - 6 (Coming Soon)

### Gestation and Foaling by Peggy M. Auwerda Iowa State University

Nutrition is extremely important for both the gestating and lactating mare so carefully evaluate your feeding program. What can you do with your mare when she is pregnant?

A) Exercise - The decision to exercise a mare is based on the mare's overall health and the owner's desire to work with the horse. In general exercise that was well tolerated prior to breeding should be fine and may even be helpful for the first seven months. Exercise keeps the mare in shape. Any increase in exercise needs to be done very carefully. Some mares continue to be worked after the 7th month but this should be done at reduced levels and only if the mare looks comfortable exercising. Any signs of straining, grunting, unusual swellings, or labored breathing should be considered as cause to quit.

B) Travel - The key to travel are whether your mare travels well. If she travels well, trailering the mare should be fine. However, a lot of trailering may cause excessive stress which can potentially harm the fetus.

Gestation is the amount of time the mare is pregnant. Gestation will vary depending on the season of expected foaling, specie, and the breed. Regular sized horses and ponies have an average gestational length of 340 days; however, this may vary from 320 days to over 365 days. Gestation length is shorter in Thoroughbreds (325 - 340 days) than draft mares (330 - 340 d) and hybrids (350 - 375 d). Mares bred in late winter and early spring have gestation lengths on average 10 days longer than those bred in the summer. In addition, mares with fillies, foal on average 3 days earlier compared to mares with colts. Gestation length is slightly longer in older mares. This increase is apparent in mares 8 years of age or older. Well-fed and managed mares foal a few days early. If you expose the pregnant mare to 16 hr. of daylight (natural light plus artificial light) starting from Dec. 1, the mare will typically foal 10 d early.

As a mare owner you should prepare an area for a mare to foal in. From a facility stand point there should be either a good dry pasture or a clean, dry stall available. For small mares a good size stall is 12' by 16' while for larger mares an area 12' x 24' is more comfortable. For bedding, clean straw should be used. Straw is used because shavings can enter the foal's mouth and upper respiratory tract and there are fewer bacteria counts on straw. It is possible to lay a deep layer of straw above a layer of shavings.

Around the 8<sup>th</sup> to 9<sup>th</sup> month of gestation hypertrophy of the mammary glands begins and the udder may fill with milk. The two udders should enlarge fairly symmetrically. Often this is accompanied by swelling in the ventral abdomen in front of the teats. Note that the maiden mare may have very little distention of the udder prior to foaling. Approximately 4-6 days prior to foaling the teats distend and become tight. The teats may begin to drip milk or colostrum. These dried secretions cause the waxing up that is often seen at the end of the teats 1 to 72 hours pre-foaling. Most importantly, there is a change in the electrolytes in the mammary secretions: sodium decreases, potassium and magnesium increase, and calcium increases sharply. A mare owner can use a kit for predicting parturition that will measure these electrolyte changes. Other signs include softening and flattening of the muscles in the croup, the vulva becomes thick and puffy with edema and may elongate.

Normally parturition occurs at night. The foal will determine the length of gestation but the mare will determine the timing of parturition. Parturition is divided into three stages.



### Stage 1

- Onset: initial uterine contractions
- End: rupture of chorioallantois (water bag) at the cervical star
- 1-2 hr in length, sometimes longer
- A tail wrap may be applied
- Mare is anxious, looking at her abdomen, standing up and lying down, rolling, walking, sweating, urinating frequently

## Stage 2

- Onset: "Water breaks" or the allantochorion ruptures and the allantoic fluid is released. The allantoic fluid will look a lot like urine - and it is in fact comprised primarily of fetal urine.
- End: delivery of fetus
- **TIME IS IMPORTANT - TIME THE BIRTH.**
  - Important Landmarks
    - The first is the time the mare started into active labor contractions.* The first 5 minute landmark is important because if the mare is in strong labor, having constant and active contractions, the water should break if there is a normal foal presentation. The only reason that the water wouldn't break is if "something" is blocking the exit from the uterus so the water can't get out.
    - *The second is the time that the mare's water breaks.* Usually a mare's water will break within 5 MINUTES of her lying down and beginning to push. The white amnionic membrane surrounding the foal's foot is usually visible at the vulvar lips within 5 minutes of the water breaking. If the bubble is present there should be observable forward progress of the foal out of the mare. If the bubble does not appear or the foal does not make progress toward birth, something is keeping it from progressing through the birth canal
    - If both feet and head cannot be seen 15-20 min. following rupture of the membranes, check position of foal and provide assistance (vaginal examination or traction may be needed). The foal should be born within 30 min.
- Very forceful contractions occur in groups of 3-4 followed by a rest period of 3 to 5 minutes
- The foal is presented in the intact amnion, usually with one forelimb about 6 in. behind the other.
- Within the white membrane, you should now see the appearance of a foot, followed shortly by another foot, and then the nose. If you have seen the appearance of the white membrane, and no foot within 20 minutes, or a foot and no second foot or the nose within 15 minutes, you should - if experienced in foaling - determine the position of the foal, or if not experienced, get your veterinarian out - you may be looking at a dystocia (malpresentation) situation, and time is of the essence to achieve a healthy outcome
- Hopefully now the foaling will move ahead with the minimum of difficulty.
- Notice the natural passage of the foal toward the hocks. If assistance is required, in most situations pulling toward the mares hocks in conjunction with the contractions is recommended.
- Once the chest is out of the mare, manual rupture of the amniotic membrane should be performed if it has not naturally occurred. When the chest is through the vulva the foal can breathe on its own. Not breathing - rub foal, take straw and put in nose, breath into nose
- Once separated, the umbilicus should be dipped in a solution of one -part Chlorhexidine (Nolvasan) solution to four parts water. Dip the umbilical stump more frequently with the chlorhexidine - 3 or 4 times a day is recommended for the first 3 or 4 days, or until the stump is dry and sealed.

## Stage 3

- Onset: delivery of fetus
- End: passage of the fetal membranes
- Mare usually passes fetal membranes between 30 minutes and 3 hours postpartum.
- Do NOT cut, tear, or ligate the umbilical cord from the placenta, it will break naturally.
- Save the placenta for veterinary examination.
- Retained fetal membranes in a mare is an emergency!!!

## Postpartum Care:

- Note time of first successful nursing by foal. Foal should attempt to rise within 30 min. following birth. Foal should stand & nurse within 2 hours of birth. If the foal has not nursed within 3 hours, the foal may need veterinary attention
- Meconium should be passed within 2 hours. Note time & passing of meconium. A phosphate enema (Fleet) may need to be administered.
- The foal should drink at least 1-2 pints of good quality colostrum in the first 24 hours of life to ensure absorption of adequate antibodies. Peak absorption occurs during the first 6-12 hours after birth. Newborn foals should be examined within 24 hours of birth by a veterinarian. Blood can be drawn to detect whether the foal ingested enough colostrum by measuring IgG's.
- Monitor mare and foal closely for the first 48 hours, and then follow foal with regular evaluations. It may be

necessary to check temperature and vitals at four hour intervals. Watch for diarrhea, straining, yellowish mucous membranes, change in temperature, increased heart and respiration rate, swollen joints or navel, loss of suck reflex, lethargy, diminished capillary refill time, dehydration or abdominal distension. Thermometers will be thoroughly cleaned and disinfected (w/ isopropyl alcohol) between uses

**Normal Vital Signs for a Newborn Foal**

Temperature	<ul style="list-style-type: none"> <li>• 100°F within one hour</li> <li>• Normal temperature range - 99 - 101°F</li> </ul>
Pulse	<ul style="list-style-type: none"> <li>• 60-80 beats per minute by a few minutes after birth (resting)</li> <li>• 100-150 beats per minute as the foal stands</li> <li>• Stabilized heart rate - 70 - 96 beats/min</li> </ul>
Respiration	<ul style="list-style-type: none"> <li>• 60 - 80 breaths per minute after birth and while standing</li> <li>• 30 - 40 breaths per minute within one hour (resting)</li> </ul>

- Mare's nutritional requirements double.
- Deworm Mare with Ivermectin 12 hours after foaling
- Begin Creep Feeding the Foal between 2 and 8 weeks of age.
- Most foals are weaned between 4 and 6 months of age.

**When to call a Veterinarian:**

- ANY TIME YOU PERCEIVE AN EMERGENCY SITUATION!!!
- If your mare colics during gestation.
- If the mare's udder is not full of milk 1 week prior to expected foaling date.
- If the mare drips milk excessively before foaling.
- If the mare presents and delivers a "Red Bag." Foal must be cut out of Amnionic Sac.
- If the foal is not presented into the birth canal with the front feet (with soles down) and nose first.
- If the foal is not delivered within 20 minutes after Breaking Water.
- If the placenta is not passed within 3 hours, or if the placenta is incomplete or discolored.
- If the foal does not stand within 1 hour and nurse within 3 hours, or pass the meconium within 3 hours.
- Foal Diarrhea can be life threatening.



Within the white membrane, you should now see the appearance of a foot, followed shortly by another foot, and then the nose



Note the foal is pushed downwards towards the hocks.



The white amniotic sac is over the foal's nose. If the foal does not break this it is imperative that you open it so the foal can breathe.



The foal broke the amniotic sac.



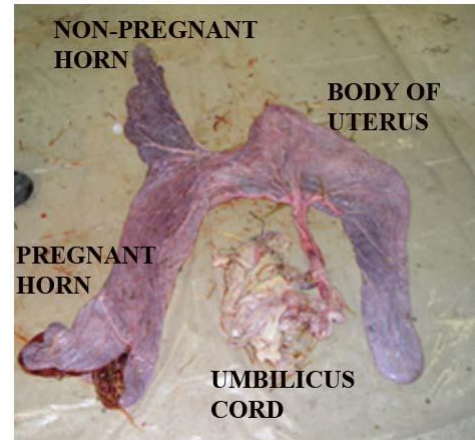
Allow the mare and foal to lie quietly for as long as they like.



The foal is attempting to move and get up.



The foal is up and standing on wobbly legs.



Placenta positioned for systematic examination. Look for tears and missing pieces that could indicate a possible retention problem. Also it may warn of potential infection and problems with the foal. Remember that the placenta has been turned "inside out" as it was expelled, and the side visible as it is spread out on the barn floor. Note the size and weight, most fall between 10 lbs. and 13 lbs., color and texture.

Because both horns of the mare's uterus are involved in providing nourishment through the placenta, both sides will be apparent, but the pregnant horn will be much larger.

## High-Risk Pregnancy by Dr. Bruce Christensen

February 1st

High-Risk Pregnancy by Dr. Bruce Christensen

Cost: Free

When: 7:30 to 8:30 p.m.

Where: Alumni Room College of Veterinary Medicine Iowa State University

Directions Available Online: [www.vetmed.iastate.edu/vmc](http://www.vetmed.iastate.edu/vmc)

Phone: 515-294-1500

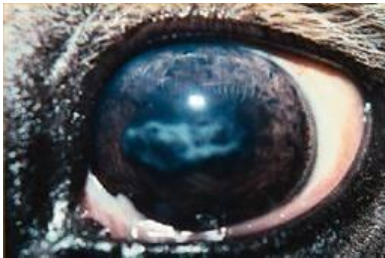


## Leptospirosis in Horses

by Deanna Donovan, student  
Department of Animal Science

Leptospirosis is a zoonotic bacterial disease that all horse owners should be aware of. It can be spread very easily by a widespread variety of animals that are common around many equine facilities. By knowing more about the bacteria, transmission, prevention, symptoms, diagnosis, and treatment of leptospirosis, horse owners will have a better chance of protecting their herd from the disease.

Leptospirosis is caused by spiral bacteria called *Leptospira*. The spiral shape gives the bacteria a hook end that can be seen under a microscope. *Leptospira* that use animals as their hosts are called *Leptospira interrogans*. They prefer a moist location to live and can live for months there, while drying out their environment will inactivate the *Leptospira*. Once in the body, the bacterium spreads through the body via blood and then tissues.



Leptospirosis Inflamed Eye

Once an animal has been infected with leptospirosis, the bacteria usually end up in the kidneys or reproductive organs. Because of this, the leptospire are then shed via urine making it easy for the bacteria to find a new host. An animal can shed the bacteria for more than a year. Since they prefer wet areas to live the disease is often caught through water. This may happen by either drinking the contaminated water or getting it in an open wound or a mucous membrane. Outbreaks tend to occur after flooding has taken place.

While there are vaccinations for swine, dogs, and cattle, there is no vaccination for horses. Using cattle vaccinations in horses has been experimented with, but was not successful. It is possible that this practice may have negative side effects for the animal. This means that horse owners

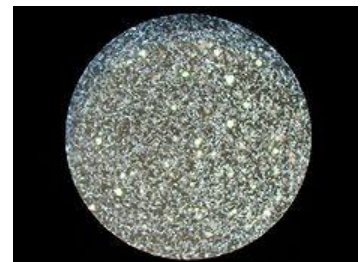
must prevent the disease by other means. Some simple ways to decrease the likelihood of leptospirosis showing up on a farm, one should control the wildlife near the barn and/or pastures. A few of the common wild animals that have been known to spread the disease include raccoons, mice, and rats. By placing the feed in something, rather than directly on the ground, it is less likely to become contaminated by urine. Another way to prevent leptospirosis is to limit the amount of standing water and have a good draining system in place. If possible, keep horses separate from cattle and/or sheep to reduce the chance of them spreading diseases. Isolation of an infected animal and also good sanitation measures will help to rid the facility of the bacteria as quickly as possible without it spreading to other horses in the herd.

There are many symptoms of leptospirosis in horses. Some infected horses will not show any symptoms at all. Others may get a fever and go off feed. Jaundice may occur in an infected animal. Renal failure and hemoglobin in the urine are both associated with leptospirosis. Hemorrhages, anemia, depression and weakness can also happen. They may also show signs of abdominal pain. Reproductive signs include infertility and abortion or stillbirths.

Two of the most frequent signs are uveitis (Moon Blindness) and abortions. Over half of horses with uveitis had leptospirosis. Uveitis occurs two to eight months after the horse is infected by the *Leptospira*. Other eye problems can also be a sign of leptospirosis, including swelling, sensitive to light, tearing, discharge, cloudiness, and redness.

Leptospirosis is blamed for approximately three to four percent of equine abortions each year. It may be more than that, as many abortions are not tested to find a cause. Abortions due to leptospirosis usually happen towards the middle to end of the pregnancy, with most occurring between November and January. Fetuses may be a yellow color, have enlarged kidneys and livers, hemorrhages, and placental lesions. Mares only have one abortion due to leptospirosis and go on to have a reproductive life like any other mare. Not all infected mares will abort; some have a weak, premature foal, while others will carry the foal to full term and have a healthy foal with no signs of the disease.

Diagnosis is usually made using the microscopic agglutination test (MAT), which measures IgM and IgG antibodies in the blood. IgM antibodies show up 6-12 days after infection, while IgG antibodies take 2-3 weeks to show. Urine and tissues can also be tested for leptospirosis but these tests are vague. They have also started using polymerase chain reaction (PCR) and antibody techniques to test for leptospirosis.



Leptospirosis

The most common medicines used to treat leptospirosis include oxytetracycline, streptomycin, and penicillin. Treatment for uveitis should be as soon as possible, and will probably be a steroid, antibiotics, and dilation of the eye. Tetracycline has been used on pregnant mares with a positive outcome but not many tests have been done on this treatment to say how well this option works.

Leptospirosis is a very serious zoonotic disease that horse owners should be attentive to. The bacteria are easily spread and since there are no vaccinations for horses, precautions should be taken to lessen the likelihood of an animal catching the disease. Horses should be watched for signs of the disease and seek medical attention as soon as a case is confirmed. Remember it is easier to prevent diseases than to treat them.

#### References

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**Functional Anatomy is January 21st  
Sign-up Soon - Space is Limited**

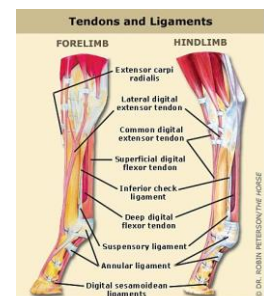
8:30 am - 3:00 pm

Designed For: Anyone interested in dissecting a specimen, or watching the process. **Warning - this course is graphic in nature and may not be suitable for those sensitive to some sights and/or smells.**

You will have an opportunity to take part in a guided dissection of the anatomy of a horse. You will investigate the systems and regions of the body methodically to understand their natural form and function. These will include the musculoskeletal system, lungs and respiratory system, excretory system, nervous system, endocrine system, reproductive system and skin.

#### Learner Outcomes

- Be familiar with equine anatomy and how the structure relates to function
- Understand the structure and physiology of the equine musculoskeletal system and its adaptations to athletic activity
- Understand where movement begins and what its premises are



- Be familiar with cardiovascular, gastrointestinal and respiratory system

#### Speakers

Dr. Katherine Gibson-Corley, ISU Dept. of Veterinary Pathology

Dr. Joan Howard, ISU Veterinary Clinical Sciences

Cost \$200 (MEM 10% discount)

Program fee include presenters, facilities, refreshments, and access to the material on the web,. Latex gloves, aprons and a step-in boot bath will be provided.

Registration Forms and Additional Information [www.extension.iastate.edu/masterequine/registration](http://www.extension.iastate.edu/masterequine/registration)

### Exercise Physiology of Animals starts January 13th

The 14-week program is an undergraduate course that is offered on a noncredit basis to horse owners, trainers, or anyone interested in the topic. This course is entirely online, so no travel to Iowa State is required.



**Cardiovascular and respiratory function in the horse, muscle metabolism, exercise and the immune system, biomechanics, training for speed, strength and endurance, long-term effects of training, the effects of heat and humidity in the exercising horse, nutrition for the sport horse, and the use of ergogenic aids.**

This course will take place every Thursday evening, 6-8:00 pm, starting January 13th and ending April 28th. Students will need to be able to utilize their computer for this time period since the lectures will be delivered in real time via WIMBA through Web CT. **All lectures will be recorded.** Students will need a high-speed internet connection. [Equine Exercise Physiology Registration](#)

### The Growing Horse is February 12th

This course is entirely on-line so no travel to ISU is required. This course is open to all individuals. The speakers are Dr. Peggy Auwerda, Dr. Stephanie Caston and Dr. David Wong.

The Growing Horse is designed to assist equine owners with understanding how young equine grow and develop. Equine owners will gain valuable insight on preventing health problems and maintaining proper development of foals from birth to one year of age.

Topics include [Nutrition for the Growing Horse](#), [Weaning Procedures and Care](#), [Developmental Orthopedic Diseases \(Prevention & Detection\)](#), [Foal Health Care](#); [Vaccinations and Deworming Schedules](#); [Foalhood Diseases](#); [Treatment of Immune Deficiency and Respiratory Problems](#).



For registration go to [The Growing Horse Registration](#)

### Iowa Horse Judges Directory

[2011 Iowa Horse Judges Directory](#) will be posted 1/10/11

[2011 Ring Stewards Directory](#)



College and Horses Webcast  
7:00 PM EST

## College and Horses



[Register](#) for the Webcast!

**Speaker:** Dr. Kathy Anderson | University of Nebraska

**Summary:** High school graduates interested in pursuing a career involving horses have more opportunities than ever. The number of institutions offering equine-related degree programs and co-curricular activities has grown immensely in recent years. This webcast will prepare prospective college students to do their homework before making their college

selection.

**Presenter Information:** Dr. Kathy Anderson has been the Extension Horse Specialist at the University of Nebraska since 1991. She oversees the youth and adult extension horse program as well as teaches Undergraduate courses in the Animal Science Department. Kathy currently teaches courses in Horse Management, Equine Reproduction and Equine Nutrition. Additionally she has coached the UNL Horse Judging team.

An avid horse show judge, Dr. Anderson is a carded judge with the American Quarter Horse Association, American Paint Horse Association, and National Snaffle Bit Association. She received her Bachelor of Science in Animal Science and Agricultural Education from the University of Nebraska, Masters of Science in Physiology of Reproduction from Texas A&M University, and a Ph.D. in Animal Science from Kansas State University.

Along with her educational background, Dr. Anderson stays highly involved in the industry; previously she was an assistant trainer and breeding manager at a large Quarter Horse farm, her family currently raises and shows Western Pleasure Horses, she is a past Board Member for the Quarter Horse Association of Nebraska, is the current Vice President of the American Youth Horse Council, and the Vice Chair of eXtension's Horse Quest project.