

Penn State Horse Newsletter

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Nov. 7, 2009**

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The PSU Equine Newsletter publishes articles on the many facets of horse health, management, Penn State equine events. [More about the Penn State Horse Newsletter...](#)



Equine Environmental Stewardship Conference

Dear Friend,

We would like to invite you to attend the Equine Environmental Stewardship Conference, November 6-7, in Harrisburg, PA. The itinerary for the educational forum (Saturday Nov. 7) will focus on the topic of Equine Environmental Stewardship and "Is Your Farm Green?" Renowned speakers from across the country will come to present topics on the most current issues facing the equine industry. The Environmental Issues Forum (Nov 7 starting at 9am -4pm) will focus on several new nutrient management regulations that are now regulating the equine industry. Management issues such as, Equine parasite de-wormer resistance will be presented. Several speakers from the Penn State University's Chesapeake Bay Targeted Watershed Project will help horse owners understand how they fit into the State Nutrient Management Regulations, pasture management, composting and carcass disposal. Attend the meetings and make sure your horse farm is "GREEN" and not in violation of any state or national regulations.

This year, we are happy to announce that we are hosting the American Horse Council's State Horse Council Advisory Committee (SHCAC) fall meeting in conjunction with the PA Equine Council and Penn State University's Fall Issues Forum and PEC Annual Meeting, November 6, 7 and 8, 2009 at the Holiday Inn East in Harrisburg, PA. The SHCAC meets twice a year, once in June during the AHC Issues Forum in Washington, DC and again, in the fall in a SHCAC participating state. The American Horse Council will be joining us for the Equine Environmental Stewardship Conference

The three day program will begin on Friday with area tours (EBY trailer plant and area farms) and socials Saturday will focus on an educational forum. Sunday will consist of the annual meetings for the SHCAC and the Pennsylvania Equine Council. The general public is invited there will be two registration rates: \$75 per person for the three day program, \$25 per person for the Saturday educational forum only (this includes your luncheons, food during the breaks and materials).

More information about the 2009 Equine Issues Forum/ Annual Meeting, including registration can be found at the PEC web site, <http://www.pennsylvaniaequinecouncil.com> or by calling Dr Ann Swinker at 814-865-7810 or by email aswinker@psu.edu.

Equine Disease Outbreaks, 2009

Contagious equine metritis (CEM) was recorded in France, the United States, and the United Kingdom (UK). One case of *Taylorella equigenitalis* infection was confirmed in France. The number of CEM-carrier animals detected in the USA since the disease was initially confirmed mid-December 2008 remains at 20 stallions, one gelding, and five mares. With one exception, all carrier stallions have been non-Thoroughbreds located at facilities specializing in semen collection for artificial insemination. No evidence exists of spread of CEM to the Thoroughbred population. The isolation of *T. equigenitalis* from a non-Thoroughbred performance horse stallion was reported from the UK. The stallion was a European import and had not been bred after entry to the UK.

Isolated cases of abortion attributable to EHV-1 were confirmed on one premises in France, four premises in Ireland, and two premises in Japan. The UK reported 14 cases of abortion attributable to EHV-1. Single cases of EHV-1 neurologic disease were diagnosed on two premises in Ireland, and multiple cases of EHV-1 were reported on a third premises. Sporadic cases were reported on three premises in the UK. Equine herpesvirus-4 was responsible for three cases of abortion and two cases of respiratory disease in Ireland and one case of respiratory disease in the UK. Mild outbreaks of equine influenza were confirmed on two premises in the UK. Spain reported five cases of influenza in Thoroughbreds, and Sweden recorded the disease on two premises. Influenza was diagnosed on eight premises in France involving multiple breeds; all were epidemiologically linked. The virus was closely related to the Ohio 2003 strain of H3N8 virus.

Twenty-one cases of strangles in 10 separate outbreaks were recorded in Ireland; Sweden reported the disease on 28 premises, and it was confirmed in at least 30 horses on three premises in South Africa. Isolated cases occurred on six premises in France.

The annual recurrence of African horse sickness in South African horses involved primarily mild disease in young, unvaccinated animals. Equine infectious anemia was identified in 16 horses on three premises in southeastern France.

Outbreaks of piroplasmiasis due to *Babesia caballi* and/or *Theileria parva* were reported from France, Switzerland (five cases on five premises), Turkey (two cases on two premises), the United Arab Emirates (limited outbreaks), South Africa (multiple cases, one outbreak), and the USA (seven cases on one premises).

Thirteen cases of abortion meeting the diagnostic criteria for mare reproductive loss syndrome (MRLS) were reported from Kentucky between May 5 and June 15: seven late-term abortions and six early fetal losses. Multiple breeds were affected; several affected farms reported significant numbers of Eastern tent caterpillars concurrently with MRLS.

Recurrence of vesicular stomatitis (New Jersey serotype) was reported from the United States in June. Isolated cases of the disease were confirmed in equines on one premises in New Mexico and three in Texas. The United States also reported cases of Eastern equine encephalomyelitis in Florida, Georgia, and Louisiana. Reference: Equine Disease Quarterly

Drug Eliminates Parasite that Causes Piroplasmosis (Babesiosis) in Horses

Reported by Dr. Ann Swinker, Extension Horse Specialist

A drug commonly used to treat cattle and sometimes dogs for a blood parasite, can eliminate the parasite *Babesia caballi* from horses, according to [Agricultural Research Service](#) (ARS).

B. caballi, a blood parasite transmitted by ticks, is one of the culprits behind the disease babesiosis in horses. Equine babesiosis is also caused by another blood parasite called *Babesia (Theileria) equi*. The drug imidocarb dipropionate has been used in the United States for many years to treat diseases like Texas fever, also referred to as cattle fever or babesiosis in cattle.

In equine, babesiosis is an acute, subacute, or chronic infectious hemolytic disease caused by the intraerythrocytic protozoa *Babesia equi* and *Babesia caballi*. The disease is also known as equine piroplasmosis and "biliary fever." Endemic in most tropical and subtropical regions of the world, this infection has been documented in horses, mules, donkeys, and zebras. The occurrence of equine babesiosis has been tied closely with the geographic distribution and seasonal activity of its biological vectors: species of ticks in the genus *Dermacentor*, *Rhipicephalus*, and *Hyalomma*. Horses become infected with the *Babesia* organism when they are parasitized by feeding ticks that harbor the sporozoites in their salivary secretions. Ticks acquire the organism by taking a blood meal from infected horses. (Reference: <http://www.vet.uga.edu/VPP/clerk/edwards/index.php>).

Historically, babesiosis has had the greatest impact in southern Africa, where it was first described around the turn of the century as

"anthrax fever," "biliary fever," a "billous form" of African Horse Sickness, or "equine malaria." Recently, equine babesiosis has spread from its endemic subtropical zones to more temperate regions as global transport of equids has increased greatly.

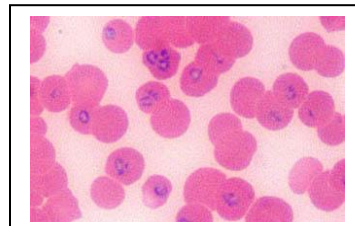
In the United States, babesiosis is considered a foreign disease in horses, though it is common in nearby locales including the U.S. territory of Puerto Rico. It is important to assure complete parasite elimination because infected horses can appear healthy, but can still transmit the disease.

Horses presented for import into the United States are tested at the border. Those that test "positive" are either destroyed or returned to their place of origin. However, infected horses occasionally escape detection and enter the United States. Since such horses are often retested for subsequent international movement, they are then discovered to be infected and placed under quarantine at great expense to the state and the owner. Therefore, methods to eliminate the parasite from such horses and eliminate transmission risk were sought.

If approved for use in the United States, imidocarb dipropionate would offer a humane way to clear horses of *B. caballi* and allow them to enter or remain in the United States. (Reference:

<http://www.ars.usda.gov/is/pr/2009/090928.htm>)

Babesia equi in equine blood smear.



Hay Quality for Different Classes of Horses

By: Ann Swinker, Extension Horse Specialist

Hay is the most important part of the horse's diet and makes up 50-100% of the horse's diet. It is the best source of energy, protein, vitamins, minerals and, most importantly, fiber that is necessary for normal gut function in the horse. The quality of hay varies considerably between different loads of hay.

Hay is the bulk of the horse's diet. Grass or alfalfa hays, or a combination of the two, are good sources of roughage. Grass hay is generally higher in fiber and dry matter than alfalfa, but alfalfa may be higher in protein, energy, vitamins and calcium. Hay can be long-stemmed in hay bales. Many horse owners feed grass hay or straight alfalfa or a combination of grass and alfalfa to their horses. Grasses commonly used as hay are brome, orchard, and timothy. — Long stem hay is the traditional baled hay. It is cut, cured, and baled. It can be bundled in 30- to 80-pound square bales or large, round or long square bales that can weigh tons. Horse hay needs to be of good quality.

Horse hay should be bright green, leafy and fine textured, with a fresh, pleasant aroma. Musty hay or other indications of mold or heating, and dust, weeds and other foreign material in hay can be unhealthy for an animal. Color is an indicator of quality and nutrient content; good hay is a bright green. Most nutrients in hay are in the leaves, and leafy hay is a valuable source of food. Leafiness is influenced by the kind of hay, its maturity when cut, the weather conditions while growing and curing the hay, and curing procedures of the hay. Dust is objectionable in any feed for horses. It not only reduces the taste of the hay, it also aggravates respiratory problems. Avoid feeding moldy or dusty hay. This type of hay is unacceptable for horses.

Quality of hay can be measured in terms of qualitative and quantitative characteristics. Qualitative characteristics are most often visual appraisals. Quantitative characteristics are actual chemical measures of various nutrients and other components influencing nutrient amount and digestibility.

Qualitative (visual) measures:

Two primary factors that influence forage quality are nutrient concentration and nutrient digestibility. Both of these are heavily influenced by the stage of maturity of the forage plant. Most of the highly digestible nutrients in forages are present in the leafy part of the forage. Less digestible components are present in the stem. As a plant matures the stems thicken and the amount of leaves decrease. Therefore, the nutrient rich and highly digestible proportions of the plant decrease with age, while the less digestible and less nutrient rich part of the plant increase. The ratio of leaves to stems provides a simple visual measure of maturity that can be used to estimate digestibility and nutrient content when comparing different loads of hay. The degree of maturity can also be estimated by the appearance of the seed heads on grasses and flowers on legumes. When a plant becomes fully mature, its seed head/flower will be in full bloom. So you do not want hays with full seed heads.

These qualitative methods provide some estimate of maturity that is useful for making comparisons between different loads of hay. However, they do not provide any information regarding nutrient concentration. Therefore, the combination of visual and laboratory analysis will result in selecting hay that meets the nutrient needs of your horse. Qualitative measures may be used initially to narrow down what hay to buy. But quantitative (analysis) measures should be used to make your final decision.

Quantitative measures - The first step to having

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a hay sample analyzed by a forage testing lab (quantitative measure) is to obtain a representative sample. To properly sample hay, a core sampler should be used (figure 1). Core samplers can be purchased at most feed and farm supply stores. Several bales (10-20) should be sampled and then pooled for final analysis. The amount of forage sent to the laboratory for actual analysis is approximately one pound. It is important to choose a certified forage laboratory. Hay/forage testing labs can be found by calling your County Extension Offices. The cost for analysis is ranges from \$18 to \$40.00.

Hay sample analysis generally takes a few days. Most analyses include the following information: Dry Matter (DM) (percent DM = 100 - percent water), crude protein, minerals (calcium, phosphorus, potassium, magnesium, etc.), acid detergent fiber (ADF) and neutral detergent fiber (NDF). Vitamins and some minerals (e.g. selenium) usually cost extra and must be requested in addition to the standard analysis. If you live in an area of low selenium soils, you should have the selenium content analyzed to detect and prevent possible problems. Safe limits for selenium is estimated at 2 ppm, and levels greater than 0.5 ppm can be toxic.

All of the analyzed items are nutritionally important, the key items to look for in forage quality are acid detergent fiber (ADF) and crude protein (CP). ADF is part of the cellulose and lignin content of forages. Cellulose is a structural carbohydrate found in forages that has very low digestibility in the horse. Lignin is an organic compound present in forages which is essentially indigestible. It also interferes with the digestion of other nutrients.

Therefore, the higher the ADF level, the higher the cellulose and lignin content and the lower the digestibility of the forage. ADF can also be used in conjunction with crude protein (CP) to determine a digestible energy (DE) value. The CP content and DE value are very important pieces of information when buying hay because energy and protein are the two primary nutrients supplied by hay.

Some analyses may contain estimates of the energy concentration of the hay, which are listed as Total Digestible Energy (TDN), Digestible Energy (DE), Metabolizable Energy (ME) and Net Energy (NE). These values are generally intended for use with cattle and should not be used for horses unless specifically stated that they have been calculated for the horse. If no energy concentration is listed on the analysis, then it can be calculated using percent crude protein and percent ADF with the following equation: $DE \text{ (Mcal. /lb)} = \{4.22 - 0.11 (\%ADF)\} + [0.03632(\%CP)] + [0.00112 (\%ADF)^2] \} / 2.2$

Requirements

The hay that you buy should meet your horse's requirements. Table 1 lists a range of crude protein and ADF values suitable for meeting the nutrient requirements of various classes of horses. Table 2 lists the range of Relative Feeding Values (RFV) that can also be used determine the nutrient requirements for specific classes of horse.

When buying hay, look at nutrient content and digestibility of forages using both qualitative and quantitative techniques enables the horse owner to select the best value hay related to cost and nutrient requirements.

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Table 1. Crude protein, acid detergent fiber and neutral detergent fiber requirements for various feeding classes of horses (expressed on a 100% dry matter basis). Referenced from Paul Siciliano Ph.D., Assistant Professor of Animal Sciences, Colorado State University.

Feeding class	%CP	%ADF	%NDF
Maintenance	10	37-40	50-65
Breeding Stallion	10	37-40	50-65
Performance	10-12	30-37	40-60
Broodmare	12-18	30-37	40-60
Growing Horse	14-18	30-35	40-5

Table 2. Relative feeding Value (RFV) ranges for different feeding classes of horse:
RFV= [(Digestible Dry Matter X Dry Matter intake) / 1.29]

Maintenance	83 - 112
Breeding Stallion	83 -112
Performance	93 - 150
Broodmare	115 -152
Growing Horse	115-152

Horses eating low quality Forage



Edited by [Extension Horse Specialist Ann Swinker](#), The Horse Newsletter publishes articles on the many facets of horse health, management, Penn State equine events related to the horse industry in Pennsylvania. [More about the Penn State Horse Newsletter...](#)

PSU Equine Events:

PA State 4-H Horse Show, Farm Show Complex, Harrisburg, PA October 23-25, 2009

Pennsylvania Equine Issues Forum, Holiday Inn, Harrisburg, Pa, November 6-8, 2009

Pennsylvania Equine Council, Annual Meeting, Holiday Inn, Harrisburg, Pa, November 8, 2009

Pennsylvania Farm Show, Harrisburg, Pa, January 9-16, 2010

50th Anniversary State 4-H Horse Show

October 23-25, 2009

Make plans now to attend the 2009 Pennsylvania State 4-H Horse Show on October 23-25. The 50th anniversary show will be held at the Farm Show Complex & Expo Center in Harrisburg. The show will honor volunteers, extension and industry professionals, 4-H youth and alumni who have contributed to the history and excellence of the 4-H horse program since its inception.

More details about the 50th show and special events for the anniversary year will be distributed as they become available. Please check the website periodically for updates.

<http://www.das.psu.edu/4-h/horses/calendar-deadlines-and-event-details/pa-state-4-h-horse-show>

