

Brought to you by the UK Equine Initiative and Gluck Equine Research Center

Kentucky Breeders' Short Course Offers Insights

The inaugural Kentucky Breeders' Short Course, hosted by the University of Kentucky Gluck Equine Research Center, drew more than 100 participants to Lexington's Fasig-Tipton Sales Pavilion in January. The two-day short course included participants who represented various breeds from Kentucky and about six other states.

Lecturers from the Gluck Center, other College of Agriculture faculty, and local veterinarians provided expertise on a variety of topics, including nutrition, stallion management, routine care, and pasture management. Some of the topics from the short course are recapped below.

Equine Parasites: A Long Way from Licorice

On the first day Gene Lyons, PhD, professor of classical parasitology in the Department of Veterinary Science, discussed the major types of parasites that affect the horse, including large strongyles, small strongyles, and ascarids.

Large strongyles are the most pathogenic (cause the most disease/damage) of the 100 species of worms affecting horses, often migrating

outward from the gut and causing lesions in other organs. Small strongyles are less deadly, but more common, and they can drastically lower digestive efficiency. Ascarids are most problematic to young foals due to their naïve immune systems, and ascarid eggs can survive in pastures for years.

When the effects of worms were first noticed in horses, early scientists treated them with such therapies as licorice, poultry intestines, and their



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own blood. Fortunately, modern science developed deworming products in the 20th century,

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but now the result of long-term usage in horses is rearing its ugly head. Parasite resistance has become an area of concern for horse owners in recent years, particularly with regard to popular dewormers ivermectin and pyrantel pamoate.

According to Lyons, certain types of worms might have developed resistance to some medications, but these medications still work against others and should still be used along with a good pasture management program.

Genetic Testing in Horses

Another featured topic on the first day was genetic testing in horses by Kathryn Graves, PhD, of UK's Animal Genetic Testing and Research Laboratory. Since the equine genome was sequenced in 2007, a variety of genetic tests are now available to the public.

The Animal Genetic Testing and Research Laboratory can test for inherited diseases and traits from a hair sample. Horses have been tested for common genetic diseases such as hyperkalemic periodic paralysis (HYPP) and severe combined immunodeficiency (SCID), in Quarter Horses and Arabians, respectively, in recent years, but lesser known disorders such as hereditary equine regional dermal asthenia (HERDA) and malignant hyperthermia (MH) are often forgotten.

Graves recommended that breeders and owners screen all breeding stock for genetic disorders common among their breed. She said a positive test should not automatically result in an animal's removal from the herd, since they might carry a

recessive form of the gene, allowing the breeder to plan carefully to avoid inheritance of the trait.

Coat color testing is another scientific advantage born from the horse genome sequence. While scientists cannot tell breeders exactly what color their foal will be, they can give a list of possibilities based on samples from the stallion and mare. Color is now better understood than before the sequencing, and researchers even know what combination of genes produce unusual coats such as champagne, sabino, and tobiano.

For more information about genetic testing, contact the UK Animal Genetic Testing and Research Laboratory at 859/257-4757, ext. 81212.

Feeding the Broodmare

Laurie Lawrence, PhD, professor of equine nutrition in the UK's Department of Animal and Food Sciences, discussed the importance of tailoring a mare's diet to fit her various production stages and the time of year.

Before breeding, the mare's body condition score is linked to her fertility. Fleshier mares are more likely to get in foal and take fewer services to do so, which means managers should "let down" mares coming out of their athletic careers and allow their fat stores to build up before the breeding season.

Spring and fall pastures provide the mare extra nutrients during early and mid-gestation, but winter arrives as her nutrient requirements rise in late gestation. The fetus weight may make the broodmare less inclined to eat as much as she



ANNE M. EBERHARDT

On average, a stallion has sufficient sperm to impregnate seven mares per day in a natural breeding program.

needs, so managers should build up her body condition score in the fall as much as possible (before her nutrient needs rise and while the fetus is lighter).

After foaling, nutritional needs increase with lactation. Young horses can drink up to three pounds of milk per day, which leads not only to energy store depletion in the mare, but also to bone demineralization. During weaning, managers should replenish broodmares' nutrient stores and maintain their body condition while on pasture.

Stallion Management

The second day of the short course was also filled with useful information for farm managers. The first presenter was Ed Squires, PhD, Dipl. ACT, executive director of the Gluck Equine Research Foundation and director of advancement

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and industry relations, who spoke about the management of stallions.

According to Squires, stallions should not be bred until they are at least 3 years old. Breeding earlier than age 3 can be a mistake because stallions can develop abnormal breeding behavior. Sexual maturity occurs at 5 to 6 years old.

Season is another important factor in the breeding of stallions. The stallion can produce sperm year-round, but he only produces half the amount of semen in the winter as he will in the spring. There is no change in the quality of semen as long as the stallion is ejaculated on a regular basis.

On average, a stallion has sufficient sperm to impregnate seven mares per day in a natural breeding program. Sex drive determines how often the stallion can be used whether it be one, two, or three times a day. A greater sex drive equals more frequent breeding.

Abnormal sexual behavior in both stallions with poor libido and those with excellent libido can include inability to attain an erection, dismounting at beginning of ejaculation, incomplete intromission or lack of pelvic thrust, or repeated intromission, but no ejaculation.

Other speakers at the short course included: Mats Troedsson, DVM, PhD, Dipl. ACT, chair of UK's Department of Veterinary Science and the Gluck Center; David Horohov, PhD, William Robert Mills Chair at the Gluck Center; Valerie Linse, DVM, MS, of Hagyard Equine Medical Institute; Kristina Lu, VMD, of Hagyard Equine Medical

WEED OF THE MONTH

Common name: Buckhorn plantain

Scientific name: *Plantago lanceolata* L.

Life Cycle: Perennial

Origin: Eurasia

Poisonous: No

Buckhorn plantain is widespread across North America and is a common plant in various pastures and turf. Also called narrow leaf plantain, this is a well known weed because of its unique growth habit. Leaves are narrow and have three to five prominent veins.

Flowers and seeds are born on a leafless, slightly hairy stem. Flowers are golden brown and are arranged in a dense cluster at the tip of the stem, which makes it difficult to distinguish individual flowers.

The fruits are brown capsules and are easily recognized atop the stem. Both flowers and fruits occur from May through about September or October.

Fibrous roots are produced from a thick, short taprootlike underground stem. This structure allows buckhorn plantain plants to survive mowing several times during the year. Buckhorn plantain is relatively easy to control with several herbicides, however, it's generally ineffective to mow in pastures.

Hoing or digging the tap root is successful and should be done before the seed heads are formed. Consult your local Cooperative Extension Service personnel for details on herbicidal control in your area. [UK](#)



Buckhorn plantain

William W. Witt, PhD, a researcher in Plant and Soil Sciences, provided this information.

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Institute; Peter Morresey, BVSc, Dipl. ACT, Dipl. ACVIM, of Rood & Riddle Equine Hospital; Mark Taylor, of Taylor Made Sales; Jill Stowe, PhD, assistant professor in the UK Department of Agricultural Economics; Ray Smith, MS, PhD, extension forage specialist in the UK Department of Plant and Soil Sciences; and Scott Morrison, DVM, of Rood & Riddle Equine Hospital.

The Gluck Center plans to make the Kentucky Breeders' Short Course an annual event. To be added to an e-mail list for information about upcoming equine educational events, contact Jenny Blandford at jenny.blandford@uky.edu. **UK**

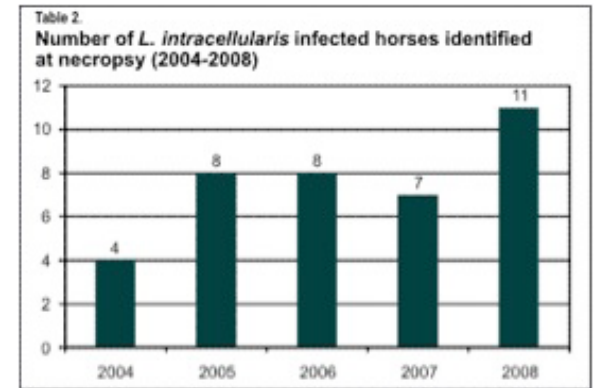
Natalie Voss is a UK equine communications intern and undergraduate student in equine science. Alexandra Harper is a UK equine communications intern and undergraduate majoring in communications.

EQUINE PROLIFERATIVE ENTEROPATHY

Equine proliferative enteropathy (EPE) is an emerging intestinal disease primarily of recently weaned foals. *Lawsonia intracellularis*, the causative bacterium of EPE, is capable of inducing similar disease in many animal species, most notably swine. To date, comparatively little research has been undertaken into the disease in horses.

The emergence of EPE over the last 15 years has been puzzling to veterinarians. Transmission between horses occurs by the fecal-oral route through environmental contamination of feed and water. Researchers have proposed that *L. intracellularis* could be transmitted from other domestic animals and wildlife to horses. Weaning, transportation, overcrowding, decreased colostrum antibodies, dietary changes, and concurrent disease have been identified as predisposing factors associated with infection. Development of disease is usually sporadic; however, infection can become endemic on farms, and outbreaks have been described. The prevalence of *L. intracellularis* infection in the equine population is thought to be high, based on serologic and fecal polymerase chain reaction (PCR) data, but the incidence of disease is considered low.

EPE can be difficult to diagnose clinically due to vague signs and lack of definitive diagnostic assays. Affected horses might develop one or more of the following signs: ventral edema (fluid



swelling along the underside of the body), depression, fever, weight loss, colic, and diarrhea. Hypoproteinemia (low blood protein levels) remains the only consistent clinicopathologic finding. A presumptive diagnosis of EPE should be based on the combination of clinical signs, the presence of hypoproteinemia, ultrasonographic evidence of a thickened small intestine, detection of *Lawsonia*-specific serum antibodies, and the detection of the organism in the feces by PCR. Neither serology nor PCR alone should be solely relied upon for diagnosis, because these tests cannot identify and differentiate subclinical (without signs of disease) infection from EPE. A definitive diagnosis of EPE can only be made through examination of biopsy or necropsy samples for characteristic lesions and identification of the organism within the lesion by silver stains, immunohistochemistry, or PCR. Infections can be efficiently resolved with antimicrobial agents.

Once a susceptible animal ingests *L. intracellularis*, the bacterium makes its way to the small intestine, where it enters the undifferentiated small

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intestinal crypt epithelium. Here the organism replicates unchecked and alters the cell cycle of the infected cells. Infected cells remain immature and rapidly proliferate, which eventually results in a thickened and inefficient small intestinal mucosa that allows for increased protein and fluid loss with resultant clinical signs.

Retrospective studies have been performed to evaluate the long-term outcome for horses previously infected with *L. intracellularis*. Results indicate that previously infected yearlings sell for significantly less money, but they do not suffer from long-term health effects. Interestingly, lifetime earnings are not significantly different in comparison to those of uninfected horses.

At the University of Kentucky, 38 *L. intracellularis*-infected horses were identified at necropsy from 2004 to 2008 (Table 2). Infection was identified in the Thoroughbred, Standardbred, Quarter Horse, American Miniature, and Mountain Pleasure breeds. Ages of infected horses ranged from 5 months to 18 years, but the majority of cases were identified in horses less than 1 year old. Necropsy findings commonly included a thin body condition, edema, and proliferative microscopic lesions in the small intestine. Not all of the identified horses developed clinical signs or EPE lesions, which suggests that some horses were subclinically infected. **UK**

Alan Loynachan, DVM, PhD, Dipl. ACVP, is a researcher at the Livestock Disease Diagnostic Center.

Reprinted from the Equine Disease Quarterly, January 2010, University of Kentucky, Department of Veterinary Science.

SADDLE UP SAFELY CAMPAIGN UNVEILS NEW BOOKLET

"Can you catch a disease from a horse?" was the question.

Roberta Dwyer, DVM, MS, Dipl. ACVPM, professor in the Department of Veterinary Science in the University of Kentucky's College of Agriculture, took the lead for Saddle Up Safely in providing an answer. She consulted with a group of Central Kentucky veterinarians and disease experts to compile practical information for horse enthusiasts. The resulting booklet is now available via the Saddle Up Safely Web.

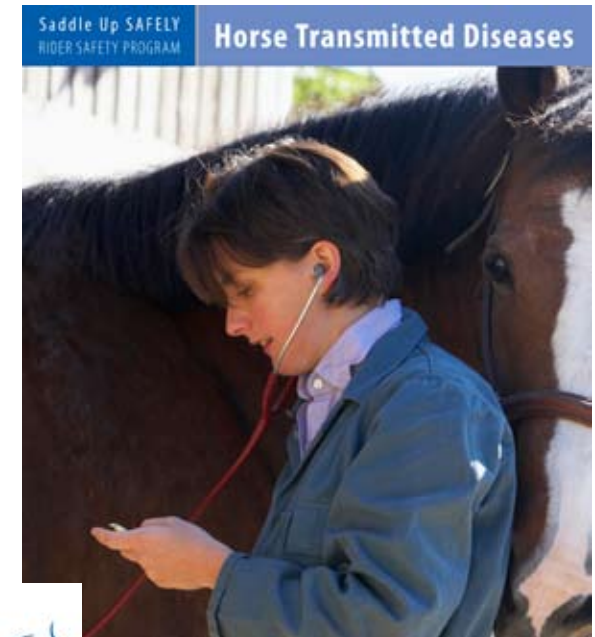
Dwyer introduces the booklet via an introductory letter. The contents of Dwyer's letter, found below, highlights the importance of this topic.

Do horses get rabies? Can you get the flu from your horse? What horse diseases can you catch? Do you know the answers to these questions? With certainty?

Many people do not know that horses can contract rabies from a rabid animal bite, and therefore be a threat to human health. Rabies is likely the most commonly known zoonotic disease, which is one that can be transmitted between animals and people. Other diseases common to horses and people, such as influenza, may have the same name, but are not transmissible between the two species. The virus strain that infects horses does not infect people and

vice versa.

Every horse person needs to know about zoonotic diseases for their own safety as well as that of their families and employees. Your veterinarian is an important source of information about zoonotic diseases, and he or she is best



equipped to advise you on routine equine vaccinations and preventive medicine. Zoonotic diseases and their clinical signs, as well as common-sense advice, are discussed in this brochure.

For more information about the Saddle Up Safely campaign, or to receive a copy of the brochure, please visit www.saddleupsafely.org. **UK**

Roberta M. Dwyer, DVM, MS, Dipl. ACVPM, is a professor in the Department of Veterinary Science.

GLUCK FACULTY ATTEND PLANT AND ANIMAL GENOME CONFERENCE

Researchers and graduate students from the Gluck Equine Research Center attended the annual Plant and Animal Genome Conference (PAG), held Jan. 9 through 13 in San Diego, Calif., to share equine genomic research and resources with scientists from around the globe.

Major past accomplishments of the workshop include the creation of an equine genetic map and arranging for sequencing of the horse by the National Human Genome Research Institute.

Continued activities of the conference this year included developing equine genomic information and tools. Many of the presentations also dealt with application of those tools to address diverse health problems for the horse.

"An amazing new chapter in equine biomedical health research is now under way," said James MacLeod, VMD, PhD, John S. and Elizabeth A. Knight Chair, professor of Veterinary Science at the Gluck Equine Research Center and director of the Equine Initiative at UK. "Equine genomics has entered an exciting phase of research application. Our understanding of the equine genome has progressed to the point where scientists can identify and study genetic determinants and molecular mechanisms of important horse diseases and traits of interest with unprecedented sensitivity, specificity, and technical efficiency."

The USDA Animal Genome invited MacLeod to the conference to make a presentation about his research regarding gene expression in the horse.

Others from the Gluck Center who attended this year included Ernie Bailey, PhD, as well as graduate students Stephen Coleman, Lauren Delftsen, Deborah Cook, and Rose McGee.

Since 1996 Bailey and Teri Lear, PhD, have attended the PAG as UK faculty representatives. Jim Boling, PhD, former UK Associate Dean of Research in the College of Agriculture, first encouraged Bailey to attend the conference in 1992, with the idea of developing a horse workshop.

Other scientists at the conference hailed from California, Minnesota, New York, and Texas, and from Australia, China, France, Germany, Ireland, Italy, Japan, New Zealand, Norway, Poland, Portugal, South Africa, Sweden, Switzerland, and the United Kingdom.

Rebecca Bellone, PhD, an associate professor of biology at the University of Tampa and former UK graduate student, chaired this year's conference. Conference attendees elected Samantha Brooks, PhD, as secretary for the 2011 meeting and chair of the 2012 meeting. She is also an associate professor at Cornell University and a former UK graduate student. [UK](#)

UK RESEARCHER AWARDED \$150,000 GRANT TO STUDY LYSINE REQUIREMENTS IN HORSES

Lysine is one of the 20 amino acids essential to horses, but often is the most deficient in their diets due to its inadequate levels in commonly-fed cereal grains. Amino acids are the building blocks of protein, which form muscle, enzymes, and hormones throughout the body. Horses can only use them if all essential amino acids are present at sufficient levels. If one amino acid, such as lysine, is deficient, the horse's body will use it up and convert the excess of the remaining amino acids into carbon dioxide, which is exhaled, and to urea, which is excreted in the urine.

Kristine Urschel, PhD, an assistant professor in animal and food sciences for the UK College of Agriculture, was awarded a \$150,000 grant from the USDA's Agricultural and Food Research Initiative and the National Institute of Food and Agriculture to study lysine requirements in horses.

"Receiving funds for research through USDA-AFRI is a great achievement for two reasons," said Nancy Cox, associate dean for research in UK's College of Agriculture, Kentucky Agricultural Experiment Station director and administrative leader for UK's Equine Initiative. "One, this program is so competitive that few researchers land funding on the first try. Also, it is much harder to secure funding for equine research, since

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more than 90% of USDA animal research is on food animals.”

“Dr. Urschel is to be congratulated for this phenomenal success,” Cox said.

Adequate levels of lysine are particularly critical for young horses, since they require more protein than adults to support their rapid growth rates. Although scientists have completed studies to determine what levels of lysine in a diet are adequate or inadequate for growth, Urschel said her study will be the first to assess exactly what amount is ideal.

“Hopefully, it will be a starting point for determining other amino acid requirements in the diet,” Urschel said.

Urschel came to UK in August 2008 after completing her bachelor’s and doctoral degrees at the University of Alberta, Canada, and completing post-doctoral research at Virginia Polytechnic Institute and State University (Virginia Tech). She began her equine research while at Virginia Tech, which led to an interest in this species’ metabolism and nutrition.

Her study will also be the first of its kind to use the Indicator Amino Acid Oxidation (IAAO) technique for determining amino acid requirements in horses. Scientists use this technique to measure the amount of carbon dioxide produced by the breakdown of an alternate amino acid. Urschel will



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be able to determine the optimal amount of lysine when she detects the least amount of carbon dioxide released from overall amino acid breakdown. Urschel will feed study horses varying amounts of lysine and measure using IAAO until the optimum level of lysine is reached.

Urschel believes the various potential applications of the study made the research appealing to the USDA Animal Growth and Nutrient Utilization group’s funding review committee.

“Some techniques such as IAAO haven’t been used to measure

lysine in horses, but the same techniques are cutting-edge in other species,” Urschel said. “I think this particular funding group recognized that we don’t know a lot about horses’ amino acid and protein requirements, but it’s important that we do.

“Although amino acid requirements can be met by simply feeding high levels of total protein, this is not a desirable approach,” she said.

She added that feeding excess protein leads to inefficient digestion and excretion of nitrogen, which can negatively impact the environment.

Urschel said she hopes the study results will help people feed their horses, whether they are young and growing or adults, more efficiently to maximize growth and minimize nutrient waste. [UK](#)

Natalie Voss is a UK equine communications intern and undergraduate student in equine science.

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DR. KRISTINE URSCHEL

MANAGING PASTURES TO AVOID TALL FESCUE TOXICITY

Broodmare farm operators in the southeastern United States are interested in managing tall fescue toxicity because of the pregnancy complications it can cause.

The UK Horse Pasture Evaluation Program (see page 9), has evaluated more than 13,500 acres of Central Kentucky horse pastures over the past five years. In doing so, researchers involved in the evaluation have learned a tremendous amount about managing tall fescue toxicity.

According to Ray Smith, PhD, pasture evaluation program director, program evaluations have shown tall fescue makes up approximately 20% of the pasture composition on horse farms in Central Kentucky. (The remaining composition is 30% Kentucky bluegrass, 11% orchardgrass, 9% clover, 20% weeds, and 10% bare soil.)

Clinical signs of tall fescue toxicity in pregnant mares include increased gestation length; agalactia (absence of milk production); foal and mare mortality; tough, thickened, or retained placentas; weak and immature foals; reduced serum prolactin levels; and reduced progesterone levels. Other signs include abortions, decreased conception, early embryonic mortality, and dystocia.

Studies found a general lack of elevated body temperatures, which differs from what is seen with fescue toxicity in cattle, but some studies reported increased sweating in pregnant mares.

Since horses possess more sweat glands than cattle, evaporative cooling from sweating more freely regulates body temperature.

An endophytic fungus produces the primary toxin in tall fescue, called ergovaline. Research has shown toxicity symptoms appear in pregnant mares at ergovaline levels greater than 300 parts per billion (ppb). However, most extension publications suggest a more conservative level of 150 to 200 ppb. During the last trimester of pregnancy, scientists generally recommend managers remove mares from endophyte-infected pastures to avoid serious complications. Fortunately, fescue toxicity in other classes of horses (such as geldings and stallions) has been minimal.

Producers can adopt pasture management practices to reduce tall fescue toxicity complications. Those practices include removing endophyte-infected tall fescue, planting endophyte-free or novel endophyte-infected tall fescue seed, diluting endophyte-infected tall fescue pastures, mowing strategically, and grazing tall fescue containing pastures only in the winter.

Endophyte-free tall fescue pastures will not cause toxicity, but this variety often does not persist well in the southeastern United States. It does show good persistence in cooler temperature locations, like the Pacific Northwest and the Midwest. As a result, researchers have developed novel endophyte varieties that contain non-ergot alkaloid-producing endophytes. The novel endophytes provide stress tolerance and improved plant survival without producing the harmful er-

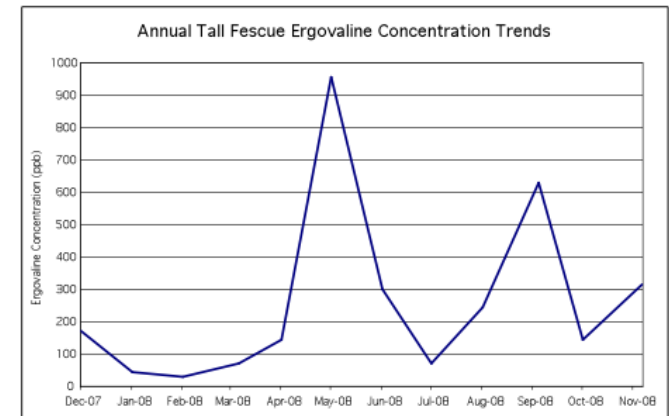


Figure 1. Monthly ergovaline concentrations for a tall fescue plant collected and analyzed in collaboration with Farm Clinic, Lexington, Ky.

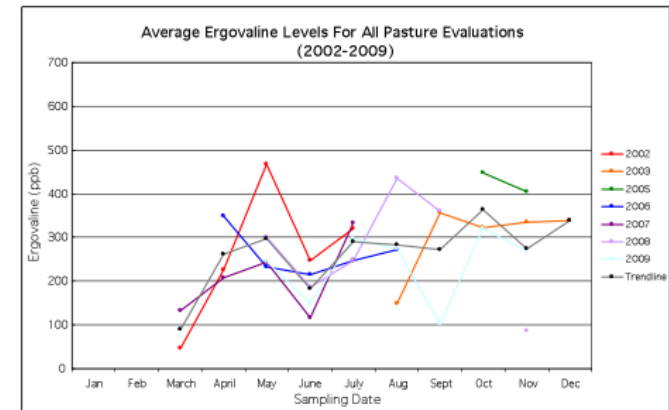


Figure 2. Average monthly ergovaline concentrations by year for all pasture evaluation tall fescue analysis.

got alkaloids. Novel endophyte varieties such as MaxQ (Pennington Seed, Madison, Ga.) have been researched and patented and are available for purchase.

Herbicides are also commercially available to remove tall fescue in pastures. For instance, im-

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TALL FESCUE TOXICITY PRIMER

Since the fungus that causes tall fescue toxicity only lives inside the plant, scientists refer to it as an endophytic fungus. It grows between the plant's cells and benefits the plant by providing increased drought tolerance, insect resistance, long-term survival, and other attributes. The fungus also produces toxic ergot alkaloids, such as ergovaline, which leads to detrimental clinical signs in most livestock, especially in pregnant mares during the last trimester. The levels of ergovaline are highest in the stem and seedheads, and they are lowest in the leaves. **UK**

azapic is a herbicide that kills tall fescue, but does not harm Kentucky bluegrass or orchardgrass. Another option is to dilute concentrations of toxic tall fescue in pastures by overseeding other grasses and legumes. Since horses do not prefer tall fescue, having other grasses available significantly reduces the chances for toxicity.

Ergovaline concentrations are the highest within the seedheads of the endophyte-infected tall fescue. Therefore, strategic mowing of the infected pastures to prevent seed development can reduce the risk of a spike in toxicity levels. Ergovaline dissipates from the plant after several winter freezes.

Fescue-containing pastures are safest during the months of December, January, February,

and March (Figure 1). On Thoroughbred farms, broodmares are usually in their last trimester during the winter months, therefore the risk for toxicity is much lower. Mares due in April and May should never be on pastures containing tall fescue because the extremely high ergovaline levels result in a high risk for toxicity. Generally, ergovaline drops again in the summer months, but this varies from year to year (Figure 2).

"With budgets tight, several horse farm managers have told me that they've reduced the cost of buying straw for bedding by simply harvesting overmature grass pastures for hay," Smith said. "On the surface it makes a lot of sense to use this stemmy hay for bedding, but be cautious using this bedding for pregnant mares during the last trimester."

Smith said it is not uncommon for horses to eat some of their bedding, especially hay (even overmature hay). If the harvested fields contained significant amounts of tall fescue in the seedhead stage, the bedding will likely contain toxic levels of ergovaline. **UK**

Ray Smith, PhD, Laura Schwer, and Tom Keene are researchers in UK's Plant and Soil Sciences Department.

RELATED ARTICLES

Smith, S.R., Schwer, L., and Keene, T.C. 2009. Tall fescue toxicity for horses: Literature review and Kentucky's successful pasture evaluation program. Online. Forage and Grazinglands doi:10.1094/FG-2009-1102-02-RV. www.plantmanagementnetwork.org/sub/fg/review/2009/horses/

UK'S HORSE PASTURE EVALUATION PROGRAM: AN ECONOMIC INVESTMENT

As horse farm managers and owners face another year of tough economic times and high feeding costs, the University of Kentucky's Horse Pasture Evaluation Program helps them stretch every dollar. The program, which will run from April to October, is based in the College of Agriculture's Department of Plant and Soil Sciences and helps managers maximize the health and growth of horse pastures.

The pasture evaluation includes a comprehensive soil map of the farm, a satellite image of the farm, grass species composition assessment, and a personal follow-up meeting with UK experts



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(PASTURE EVALUATION ...)

who will make suggestions for improvements for the upcoming year. Personal consultation is one of the main advantages of the Horse Pasture Evaluation Program, according to program director Ray Smith, PhD. This year's program now includes a small farm option with a comprehensive analysis at a reduced price.

Additional options include tall fescue toxicity analysis, ergovaline measurements and ascarid egg count. Although there are limits to the acreage that will be included in each package, an entire farm may be included in analysis if requested.

“ In essence, the more they eat in the pasture, the less they need to eat in the barn. ”

DR. RAY SMITH

In the five years since its inception, the program has serviced more than 13,500 acres during 80 farm evaluations. One of this year's goals is to provide farm owners with information about pasture composition so they can improve their pastures and spend less on hay and concentrate throughout the year.


An understanding of pasture composition is one of the most valuable pieces of information to any horse farm manager, Smith said

“For broodmare operations, knowing the amount of tall fescue to determine the risk for fescue toxicity is crucial,” he said. “(For other

operations) it's important to know the forage species that are present, how to best manage them for optimum production and the percentages of weed and bare soil present to determine the need for overseeding.”

“The economy is causing horse producers large and small to determine what inputs are essential to maintain the viability of their operation,” Smith said. “By improving pasture production, you can reduce supplemental feed costs. In essence, the more they eat in the pasture, the less they need to eat in the barn.”

According to Smith, the excessive rains in 2009 in the central Kentucky region also will affect the way pastures should be managed this year. While the moisture counteracted the 2007 and 2008 droughts, it also made seeding on larger farms difficult.

The program is available by appointment to all Kentucky horse farm owners. Applications are accepted throughout the year. For a farm registration form, e-mail Laura Schwer at Laura.Schwer@uky.edu. 

Natalie Voss is a UK equine communications intern and undergraduate majoring in communications.

UPCOMING EVENTS

March 19, 9 a.m.-4 p.m., Kentucky Equine Youth Festival at the Kentucky Horse Park. This festival will celebrate the horse industry as the Bluegrass State prepares to welcome the world to the 2010 Alltech FEI World Equestrian Games. The Kentucky Equine Youth Festival will host live demonstrations of the eight Games' disciplines for Kentucky children in grades K-12. Please visit www.ca.uky.edu/Ky2010EquineYouthFestival/ for more information.

March 25, 4 p.m., Polysaccharide storage myopathy, Molly McCue, University of Minnesota. This is part of the Department of Veterinary Science Equine Diagnostic and Research Seminar series. Location: South Theater in the Visitor Center at the Kentucky Horse Park.

UK Equine Initiative and/or Gluck Center faculty and/or staff are participating in all of these events.