BLUEGRASS EQUINE DIGEST

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

Kentucky Horse Industry is an Economic Cluster

In late July 2009 an older gentleman saw the logo on my shirt and asked me about UK's Equine Initiative. I briefly described the mission of the Initiative, and he said that he was in the Thoroughbred business, as were several other members of his family.

As I turned to leave, he stopped me cold with the following comment: "Are we going to lose it?"

I must have looked puzzled, because he said, "You know, all the Thoroughbreds. Many of my clients took their mares to Pennsylvania and other places. It's not just me. Most everyone I know is having problems."

I responded that the Thoroughbred business always goes through cycles of growth and decline.

To which he said, "That's true, but this is the worst I've ever seen in all my years in the business. Maybe this time it won't come back."

This brief conversation provides a jumping off point for thinking about the horse industry in Kentucky, its opportunities, its challenges, and the threats it faces. Our research suggests that Kentucky's horse industry represents what Harvard Business School economist Michael Porter calls an economic cluster.

A key factor in Kentucky's horse cluster is the particularly fertile soils of the central Bluegrass counties.

What is an Economic Cluster?

According to Porter, an economic cluster is "a geographic concentration of firms and institutions whose activities are interconnected and interdependent within a particular economic sector."

Kentucky's Equine Economic Cluster

The horse industry in Kentucky is a land-based economic cluster much like the Napa Valley wine industry in California. A cluster might emerge in a particular place for a variety of reasons. In the case of the Kentucky horse cluster, a key factor

ARTICLES OF INTEREST

(ECONOMIC CLUSTER ...)

in its emergence has been the land resources of the central Bluegrass counties—particularly fertile soils built on the karst limestone geology, the predominance of Maury Silt loam soils, as well as a mild climate and adequate rainfall.

The core of Kentucky's equine economic cluster is comprised of the commercial farms, training centers, show arenas, and race tracks that are engaged in horse-related activities such as breeding, sales, training, racing, showing, boarding, and equine-assisted therapeutic and learning programs. It is imperative to understand that Kentucky's equine economic cluster encompasses more than Thoroughbreds, including all horses of all breeds and uses. For example, Thoroughbreds in Kentucky are outnumbered by horses located on small farms and in "backyards" whose purpose is solely their owners' enjoyment.

However, the Thoroughbred breeding and sales component of this economic cluster is considered the strongest in the world with all the infrastructure (stallions, sales facilities, mare management, equine veterinarians, bloodstock agents, transportation services) required to support the industry within a compact geographic area. The significance of this domination of the Thoroughbred industry accounts for the prestige of a Thoroughbred foal bred and born in Kentucky.

Porter (1998b) identifies several key characteristics of economic clusters that contribute to their competitive advantage over single firms or unidimensional industries. What follows is the application of these characteristics to the equine economic cluster in Kentucky.

"The idea of an economic cluster encourages us to consider the ways in which value-added activities coalesce around an agricultural or natural resource and then attracts other firms that seek to capture spillover economic opportunities. An economic cluster emphasizes the importance of social relationships and social networks as components of economic capacity and highlights the importance of public investments and public polices in supporting the cluster."

MICHAEL PORTER

1. A growing cluster develops, as well as attracts, entrepreneurs and related businesses who migrate into the geographic area because of the cluster. In other words, success breeds success.

In Central Kentucky, many businesses provide specialized inputs and services to the core firms of the cluster. These include, but are not limited to, barn builders, farriers, veterinarians, fencing and fence painting companies, pasture mowing and renovation businesses, pest control, farm equipment sales, horse tack and supplies, hay and feed supplies, and bedding.

There also are firms such as equine speciality businesses that can only develop and thrive in the presence of the cluster. In this area, firms specializing in equine materials or services, such as horse farm tours, horse publications, equine podiatry, and equine jewelers or clothiers, complement the cluster's core economic sector.

2. Clusters flourish in part because of a large, skilled, and knowledgeable labor pool.

Competition among businesses within the cluster provides ample opportunities for employment at good wages, which attracts skilled labor. Firms are more likely to consider relocating to the region because they have confidence that employees with specialized skills will be available or that required training can be found. This reduces the search and transaction costs for both new and existing businesses seeking employees.

3. Within the cluster, specialized information is developed and circulates among firms and institutions, stimulating innovation and facilitating adaptive responses to critical conditions.

Despite competing for customers and market share, there is also a considerable amount of cooperation among firms based on information networks built on personal relationships. The development and exchange of specialized information stimulates innovation and facilitates adaptive responses to conditions that may influence the health or competitiveness of the cluster. But there is also a level of coordination in market actions and other joint activities that contributes to building

(ECONOMIC CLUSTER ...)

trust and social capital among the cluster's firms.

4. The whole is greater than the sum of its parts. In other words, the activities of individual firms in the cluster are interdependent and can be mutually reinforcing or can diminish the value of related firms.

The marketing activities of individual firms within the cluster reinforce those of other firms, strengthening the reputation and image of the cluster to potential customers. Also, the concentration of firms, specialized knowledge, and technical expertise creates a supportive environment for trade and professional associations. Finally, economic clusters might develop businesses that are complementary to each other, as in the tourism and horse clusters.

5. A cluster builds social capital as well as financial capital. This social capital reinforces the economic potential of the cluster.

Shared values and norms such as good business practices, quality products and services, trust, reciprocity, and expectations develop within an economic cluster. Frequent contact among the cluster's firms and people helps build social capital and increases the likelihood of joint ventures, strategic alliances, and collaborative work that builds and strengthens the competitive position of the cluster.

6. A cluster draws the support of public institutions and attracts public investments.

In all economic clusters, a relationship develops between firms and public institutions, including governments and educational/technical institutions. Local and state governments make public investments directed to public goods and infrastructure that support the activities of the cluster.

JORDAN STRICKLER

The Thoroughbred breeding and sales component of Kentucky's economic cluster is considered the strongest in the world.

Can An Economic Cluster Die?

An economic cluster can lose its competitive position without constant attention and support. Economic clusters can and have been lost. The decline of an economic cluster may occur for a variety of reasons:

- The emergence of a competing cluster elsewhere;
- The diminishment, degradation, or transition to other uses of the land resources that support a land-based cluster;
- Governmental regulations that restrict the adaptability and flexibility of the businesses in the cluster or intervene in the internal competition among firms;
- The failure to implement public policies that nurture and sustain the viability of the cluster; and
- The failure to make public investments in essential infrastructure.

But underlying all of these might be a psychological tendency to take for granted the presence of an economic cluster and to presume that since it has been here for a long time it will always be here. This can be the death knell of a cluster, for "without ongoing routine analysis, monitoring and nurturing" (Goetz, 2004:2) clusters will find it difficult to sustain their competitive position in a changing global economy."

This brings us back to a parallel to the question posed to me—is the decline of the Standardbred sector of the equine economic cluster in Kentucky a harbinger of things to come? The number of Standardbred stallions standing in Kentucky declined from 95 in 1985 to only five commercial stallions in 2004. Also, the number of Standardbred yearlings by Kentucky sires sold at three major harness racing sales declined from 560 in 2000 to 217 in 2005, and their average value declined from $35,229 to $22,687. The Standardbred industry in Kentucky has virtually disappeared, drawn to other states (e.g., New Jersey and Pennsylvania) that have adopted policies (e.g., breeders' incentives) that nurture this segment of their equine clusters. The

(ECONOMIC CLUSTER ...)

The long-term success of the Kentucky equine economic cluster depends on recognizing its contributions to the overall economy and a commitment to building on this unique asset through cluster-based development policies.

story at the beginning asks, "Are we seeing the same decline in the Thoroughbred sector of our equine economic cluster?"

Strategies for Nurturing the Health of Economic Clusters

There are many public and private strategies that can nurture the health of economic clusters, but all of them depend on the recognition of the existence and the potential of such a cluster, as well as an understanding that clusters survive and thrive when they are supported. The final factor is making the choice to invest in the cluster.

In many places, there is an understanding that the decision to focus on cluster-based economic development policies yields real benefits. First, studies (e.g., Gabe, 2003; Krugman, 1991) show that new business activity is higher in those places where there is a high concentration of firms, in particular industry sectors, reflecting the availability of skilled labor and related firms. Second, given that clusters attract growth, there is a higher return to public investments in economic development in these places than in others (Gabe, 2003). Third, the concept of an economic cluster provides a solution that enables political decision-makers to explain why they are focusing development programs on particular industry sectors. It is not about favoritism or a reaction to special interests, but a reasoned use of scarce resources to stimulate economic growth.

Summary and Implications

The horse industry in Central Kentucky has already passed the market test and done so for more than a century. The initial strength of the Thoroughbred and Standardbred farms in this area enhanced existing firms and stimulated the development of new firms that supported or enhanced the core of this emerging cluster. But there is a danger in assuming that this cluster will always be here. The long-term success of the Kentucky equine economic cluster depends on recognizing its contributions to the overall economy and a commitment to building on this unique asset through cluster-based development policies.

FURTHER READING

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- *Giuliani, Elisa. (2007). The selective nature of knowledge networks in clusters: Evidence from the wine industry.* Journal of Economic Geography, *7(2), 139-168.*
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Lori Garkovich, PhD, is a professor in the University of Kentucky's Community and Leadership Development Department. Assistance for this story was provided by Julie Zimmerman, PhD, Community and Leadership Development, and Kimberly Brown, MBA, MS, a doctoral student in Agricultural Economics.

University Of Kentucky Launches Rider Safety Awareness Campaign

Kentucky's first lady, Jane Beshear, and representatives from the University of Kentucky officially launched "Saddle Up Safely," a rider safety awareness campaign, at a press conference Oct. 13.

Led by UK HealthCare in response to the large number of riders admitted to UK's Emergency Department, the five-year campaign aims to increase awareness and educate riders not only in Kentucky, but nationally and internationally, about riding and horse handling safety. Ultimately, the goal is to reduce the number and severity of rider injuries. Launched during the lead-up to the 2010 Alltech FEI World Equestrian Games, the campaign's purpose is to help make a great sport safer.

"So often, injuries are incurred due to a lack of knowledge or understanding of equine behavior," Beshear said. "Through this program, we hope to educate current and future riders in an effort to curb preventable injuries. The Games provide the perfect opportunity to highlight this initiative."

The statistics underscore the need. According to national figures, an estimated 30 million people ride horses each year, generating approximately 79,000 emergency room visits, with more than 13% of those patients admitted to the hospital. (Source: National Electronic Injury Surveillance System, 2007 estimates). While injuries to arms and legs are the most commonly treated, neck and head injuries rank second in frequency and are a significant percentage of those admitted.

saddle up SAFELY

Statistically, while motorcycle riders experience a serious injury every 7,000 hours of riding, horseback riders experience one every 350 hours. It is estimated that one in five equestrians will be seriously injured during their riding careers. And novice riders, especially children and young adults, are eight times more likely to suffer a serious injury than professional equestrians.

A 2007 *American Journal of Surgery* article showed that half of patients in the study believed their injuries were preventable and were the fault of the rider.

The campaign will incorporate several tools to reach people. Included are a series of informational brochures; an interactive Web site featuring safety tips and stories from riders who were injured, as well as a horse rider safety blog; continuing medical education opportunities for medical personnel and first responders; education-based programs; a speakers bureau, or auxiliary, comprised of volunteers who will speak to organizations or events around the state; and a presence in the UK Village at the World Equestrian Games, with the opportunity to educate the event's 600,000-plus anticipated visitors.

"We expect through the Saddle Up Safely program to educate horse riders from novice to experts on some of the practical tips they can take to reduce the number and severity of injuries that they might experience," said Bill Gombeski, UK HealthCare director of strategic marketing.

A series of informational brochures is currently in development. These brochures will be available to organizations, at events, and upon request. Topics include horseback riding safety, with tips and information on riding safety; "Can you catch a disease from a horse?" highlighting the diseases that can be passed from horses to humans; equine-assisted therapy and how it's being used to treat people with special needs; "Safety starts on the ground," which recognizes that riders spend as much or more of their time with their horses on the ground rather than in the saddle, upping the chances of injury; a horseback riding safety guide developed specifically for children; and "Lessons I learned," which provides tips from riders who were injured.

(RIDER SAFETY ...)

Kentucky's First Lady Jane Beshear.

An educational Web site (www.ukhealthcare.uky.edu/saddleup) will feature the informational brochures listed above, and it will share stories from riders who have been injured and their advice on what they would or should have done differently. In addition the site will provide safety tips from the horse riding public, and it will offer contributors a chance to enter into a random drawing for World Equestrian Games tickets.

One of the features on the site will be a horse riding safety blog, hosted by Fernanda Camargo, DVM, PhD, assistant professor and equine extension specialist in UK's College of Agriculture. Camargo also heads up Kentucky's 4-H Horse Program, and much of her material will feature and target youth. The blog, which can be found at http://ukhealthcare.uky.edu/forums/blogssaddleupsafely/default.aspx, will also review and discuss safety topics, offer safety suggestions, and provide visitors the opportunity to ask questions.

"The Saddle Up Safely project is a perfect collaboration, blending the talents of UK's programs to produce a guide that will make a difference in Kentucky and is a fitting legacy project for the World Equestrian Games," said Nancy Cox, PhD, associate dean for research of UK's College of Agriculture, Kentucky Agricultural Experiment Station director and administrative leader for the Equine Initiative. "Our objective is to celebrate the joy of horsemanship and to help make it safer."

The campaign is a unique collaboration of expertise and participation between UK and the private sector. Major participants include UK HealthCare; UK Chandler Emergency/Trauma Services; the UK College of Agriculture and its Equine Initiative, Gluck Equine Research Center and Animal and Food Sciences Department; UK Spinal Cord & Brain Injury Research Center; UK Kentucky Injury Prevention and Research Center & Pediatrics; First Lady Jane Beshear; Alltech; Rood & Riddle Equine Hospital; Kentucky Horse Park; and Alltech FEI World Equestrian Games.

Corporate partners currently confirmed include Alltech, Alltech FEI World Equestrian Games, Ariat, Craig Printers, the *Lexington Herald-Leader*, TheHorse.com, the Kentucky Department of Public Health, Kentucky Horse Park, PHI (aeromedical of Kentucky), and Rood & Riddle Equine Hospital.

Holly Wiemers, MS, is the communications director for UK's Equine Initiative.

UK RESEARCHER AWARDED $100,000 GRANT FOR EQUINE AGING STUDY

Kristine Urschel, PhD, assistant professor in Animal and Food Sciences at the University of Kentucky, has been awarded a two-year $100,000 grant by the Morris Animal Foundation. Her study will be supervised by David Horohov, PhD, William Robert Mills Chair in Equine Immunology at the Gluck Equine Research Center, and she will be assisted by PhD student Ashley Wagner.

Urschel is studying the change in protein synthesis rates as horses age in order to develop better feeding and management strategies for their later years so they will maintain muscle. In the two-part study investigators first will examine whole-body and muscle rates of protein synthesis in mature (approximately 8-14 years old) versus older (older than 20 years old) horses to document changes in synthesis rates over time. Then they will compare whole-body and muscle rates of protein synthesis in older horses exhibiting symptoms of equine Cushing's disease and those without Cushing's.

Urschel anticipates this will be the first in a series of studies during the next several years about protein synthesis in geriatric horses. The end goal of the research will be to "develop dietary or management strategies to maintain muscle and quality of life (in aging horses), be that through changes in diet, or the development of a low-impact exercise

Howe Receives $500,000 USDA Grant to Conduct Sarcocystis Neurona Genome Project

Dr. Dan Howe

Gluck Equine Research Center's Dan Howe, PhD, has received a $500,000 grant from the USDA-CSREES (U.S. Department of Agriculture-Cooperative State Research, Education, and Extension Service) Competitive Grants Program to conduct a *Sarcocystis neurona* genome project.

The goal of the three-year project, titled "Genome Sequence for the apicomplexan *Sarcocystis neurona*," is to sequence, assemble, and annotate the genome of *S. neurona*, the protozoan (single-cell) parasite that causes equine protozoal myeloencephalitis (EPM). This is a debilitating neurologic disease that continues to have a significant impact on equine health in North and South America. In addition to the expenses associated with diagnosis, care, and treatment, EPM can be particularly costly in performance horses since many of these animals might not recover sufficiently to allow their return to competition.

"Similar to the horse genome project, this work will open numerous new avenues of investigation," Howe said. "For example, the *S. neurona* sequence information can be exploited to identify new targets for protective immunization or chemotherapeutics against this parasite. As well, the *S. neurona* genome project will have broader impact by complementing research on related parasites that cause significant disease in humans and other animals (e.g., malaria, piroplasmosis, and toxoplasmosis)."

All the information from the study will be posted to public databases for use by others interested in researching *S. neurona* and EPM. The project builds on prior sequencing projects conducted in Howe's lab, which was funded by the Amerman Family Foundation.

Howe will collaborate on the project with Chris Schardl, PhD, the Harry E. Wheeler Chair in Plant Mycology and director of the University of Kentucky Advanced Genetic Technologies Center (UK-AGTC), and Jessica Kissinger, PhD, of the University of Georgia.

Jenny Blandford is the Gluck Equine Research Foundation assistant.

(AGING STUDY ...)

program, or some other management strategy," she explained.

Urschel said because horses have become "part of the family," more owners are retiring their horses, which are living into their late 20s and early 30s. This research could impact many horse owners, from those with large competition barns to those with a few horses in the backyard.

Dr. Kristine Urschel

Urschel came to UK in August 2008 after completing her bachelor's and PhD degrees at the University of Alberta, Canada, and post-doctoral research at Virginia Polytechnic and State University. She began her equine research while at Virginia Tech, and this led to an interest in equine metabolism and aging.

According to Urschel, this is the first study of its kind to focus on changing protein synthesis in aging horses, and it ties into Horohov's earlier research of inflammatory mediator production in geriatric horses.

Both Urschel and Horohov anticipate this grant study will stimulate other equine research at UK.

"Hopefully it will bring attention to UK," Urschel said. "I am a new researcher and optimistic that because it's an area of public interest, it will also bring attention to my research program. I would love to see how the study fits with research on human aging and muscle loss. It might bring us funding from sources that is normally reserved for research on humans."

"It sort of gives us a whole new direction," Horohov said. "The work she's doing will add to an overall understanding of geriatric biology in the horse."

The Morris Animal Foundation, founded by Mark Morris, DVM, in 1948, promotes and funds research to protect, treat, and cure large and small companion animals and wildlife. The Foundation has previously funded research efforts that led to the Potomac horse fever vaccine and development of the equine genome, and it has also supported a program it established called the Equine Health Initiative. A group of scientific advisory boards make the awards based on available funding, scientific soundness, and topic relevance.

"Although aging isn't traditionally considered a disease, one of the areas the Morris Animal Foundation is committed to is geriatric animal research, so aging fits directly under its mission," Urschel said. "Most of their geriatric research so far has been in dogs and has focused on other elements of aging such as nervous system function and chronic diseases. This study will look at entirely different aspects of aging from what MAF has funded in the past, although the end goal is still aimed at improving the quality of life of aging animals."

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

PAGE TO STUDY *LAWSONIA INTRACELLULARIS* AT GLUCK CENTER THROUGH NEW PROGRAM

Through a new program for veterinarians interested in a PhD, called the Pfizer Animal Health-Morris Animal Foundation (MAF) Veterinary Fellowship for Advanced Study, Allen Page, DVM, will receive a substantial four-year stipend to complete his PhD at the University of Kentucky's Gluck Equine Research Center.

The recipients of the fellowships are practicing veterinarians returning for a PhD. The funding is provided equally by MAF, Pfizer Animal Health and the student's academic institution for living expenses and tuition while pursuing advanced veterinary study. UK's academic portion was provided by the Goodman Foundation.

Graduates must commit to staying in animal health research for at least four years upon graduation, where they will help fill a much-needed gap in the veterinary medical field.

Page, who interned at Hagyard Equine Medical Institute in Lexington, Ky., will research the epidemiology of *Lawsonia intracellularis* (LI), a bacterium that causes intestinal disease, at the Gluck Center. While interning at Hagyard, Page's exposure to a diverse caseload and treatment techniques—from conducting ultrasounds to developing fluid resuscitation plans—piqued his interest in veterinary research. While at Hagyard, he began studying LI.

(LAWSONIA ...)

"Little is known about LI," Page said. "I have seen firsthand what dedication to a project can accomplish. I look forward to spending the next couple years conducting research at a premier institute like the Gluck Center."

Page is one of seven recipients of the fellowship that includes equine, canine, and feline researchers. The program commits a minimum of nearly $1.7 million over four years toward a solution to the growing need for trained veterinary scientists.

"Many practicing veterinaiians may wish to become veterinary scientists, but they can't continue their educational journey due to financial constraints, such as high student debt," said David Haworth, DVM, PhD, director of global alliances for Pfizer Animal Health.

Dr. Allen Page

"The Pfizer AnimalHealth–MAF fellowships help these professionals pursue a new career path and provide a unique solution to the critical need for more veterinary scientists."

Jenny Blandford is the Gluck Equine Research Foundation assistant.

University Of Kentucky Researcher Wins Prestigious Award; Will Be Honored By President Obama

David McNear, PhD, assistant professor of rhizosphere science in UK's Plant and Soil Sciences Department, was recently awarded the Presidential Early Career Award for Scientists and Engineers (PECASE) for his research on endophyte-infected tall fescue and how it impacts soil microbial communities, chemical properties, and nutrient cycling.

Dr. David McNear

According to a Department of Energy news release, the award is the highest honor bestowed by the U.S. government on outstanding scientists and engineers beginning their independent careers. McNear will receive the award in person from President Obama at the White House this fall.

McNear heads up the rhizosphere science laboratory in UK's College of Agriculture. The lab is focused on exploring the processes that occur "where the root meets the soil," or in the rhizosphere, a 1-2-millimeter zone of soil around a plant root. The deposits and chemicals released from the plant root can, in turn, be influenced by or have an influence on the surrounding environment.

According to the project proposal, which brought about the nomination and subsequent award, tall fescue covers more than 15 million hectares (about 37 million acres) within the United States and is considered one of the most desirable forage species for grazing livestock.

Because of animal toxicity issues associated with common toxic endophyte tall fescue varieties, novel endophyte infected tall fescue varieties are gaining popularity. McNear's project is expected to generate basic knowledge on how an agriculturally important, widely occurring plant-fungal symbiosis impacts soil microbial communities, chemical properties, and nutrient cycling.

McNear was subsequently awarded the grant and is in the first year of research on the project. Co-investigators are UK forage researcher Rebecca McCulley, PhD, and microbiologist Noah Fierer, PhD, at the University of Colorado.

While it might not be readily apparent how the rhizosphere impacts the pastures horses graze, McNear maintains that soils are integral to just about everything we do, and he spends his time in his "Fundamentals of Soil Science" class

(MCNEAR ...)

teaching students just that. The class, a requirement in UK's new Equine Science and Management undergraduate degree program, focuses on the importance of soils.

"They support the buildings we put on them; the food we grow in them; they withstand and treat the contaminants we introduce to them; they filter the water we drink; they capture the carbon dioxide we produce; etc.," he noted. "They are an integral resource that deserves to be respected, understood, and preserved."

According to McNear, recipients of the award are selected from early career scientists (those within the first five years of their careers who have not yet gained tenure) who received exceptional ratings on grants submitted to one of the federal granting agencies. In his case, it was the USDA, where his proposal ranked third of the 80 total proposals submitted, making it a top-rated proposal for a young investigator. McNear is one of only three scientists in the United States who received the USDA PECASE award this year, and he's one of only 100 who were recognized with the honor across all federal agencies.

Upon learning he was a recipient of the award, McNear said, "As you would expect, I was pretty surprised. As a new faculty member, you are under a lot of pressure to write grants and get money, among other things like graduate students and publish, which is all I was hoping to do, to write grants and hopefully get lucky with one of them.

"When I heard the news that I received the grant, I was elated," he added. "When I heard that I was being nominated for the PECASE, I was confused. 'Why me?' was something I've said and thought often. I am only doing what I was supposed to do, keeping my head down, focusing on the research, and teaching—doing my job. Needless to say, I am honored and humbled by having been chosen. I never expected it, I graciously accept it, and will try to do my best to fulfill my charge."

McNear has been at UK for just over two and a half years. A native of Central Pennsylvania, he was the first member of his family to attend college. He earned an associate's degree in life sciences from Harrisburg Community College; a bachelor of science in environmental resource management with a minor in environmental engineering, and a master's in environmental pollution control from The Pennsylvania State University; and his PhD, specializing in metals in soils, from the University of Delaware. Before coming to UK McNear worked briefly at the University of Delaware's Delaware Biotechnology Institute.

He and his wife, who holds a PhD in agronomy, both specialize in animal grazing systems, and works for the Kentucky Science and Technology Corporation, have a 3-year-old daughter and are expecting twins in early November.

Holly Wiemers, MS, is communications director for UK's Equine Initiative in the College of Agriculture.

FURTHER READING

- *UK College of Agriculture Ag Magazine: www.ca.uky.edu/agc/Magazine/2009/FALL-2009/Articles/NewsInBrief.htm#award*
- *UK Rhizosphere Science Laboratory Web site: www.ca.uky.edu/labs/Rhizolab/LabPersonnel.html*
- *White House official news release: www.whitehouse.gov/the_press_office/president-honors-outstanding-early-career-scientists*

Kentucky Stud Managers' Short Course

UK's Gluck Equine Research Center will host its inaugural Stud Managers' Short Course Jan. 20-21, 2010, from 8 a.m. to 5 p.m. each day, at Fasig-Tipton Sales Pavilion in Lexington. Please note that this is a revised date.

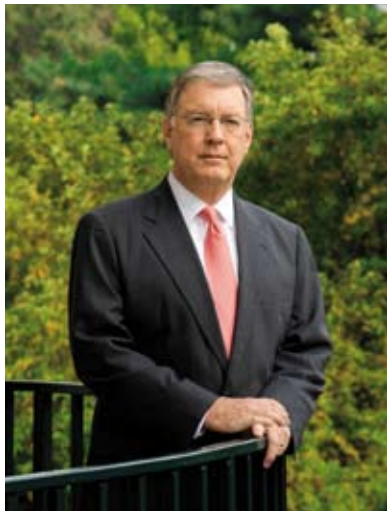
The course is designed for owners and managers of all horse breeds and will feature lecturers on reproduction, nutrition, health, pasture management, economics, and marketing from a panel of experts.

Registration is available on the Gluck Center's Web site (www.ca.uky.edu/gluck).

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

KEENELAND PRESIDENT NICK NICHOLSON TO SPEAK AT INAUGURAL DISTINGUISHED LECTURE SERIES

Keeneland Race Course President and Chief Executive Officer Nick Nicholson will speak at the inaugural event in the University of Kentucky Equine Initiative Distinguished Industry Lecture Series at 6:30 p.m. Nov. 3 in Seay Auditorium in Ag Science Center North on the corner of Limestone and Cooper on the UK campus. The lecture series is open to all UK students, as well as all other students from Kentucky colleges and universities. The general public is also encouraged to attend.



Nick Nicholson

Dan Liebman, editor-in-chief of *The Blood Horse* magazine, will interview Nicholson. Questions will be submitted by students and others in the audience. There will be three main areas of discussion: Nicholson's career path, Keeneland, and the general state of the horse industry.

"We are very pleased to have such an accomplished individual for the inaugural lecture in this series. The novel format will provide an informal atmosphere that should engender lively discussion," said Nancy Cox, PhD, associate dean of the College of Agriculture, Ag Experiment Station Director, and administrative leader for the Equine Initiative. "The informal, question-and-answer format, led by an industry leader in his own right, Dan Liebman, will provide valuable interaction with the audience."

According to Cox, the UK Equine Initiative Industry Lecture Series was designed to bring in creative and successful industry leaders who can inspire and challenge not only students, but university and public communities.

"Inaugurating this series with Nick Nicholson is fitting because of his leadership status in the international Thoroughbred community," said Scott Smith, PhD, College of Agriculture Dean. "Under his leadership Keeneland is recognized as an iconic symbol of the Bluegrass."

Prior to joining Keeneland, Nicholson was the executive vice president and executive director of The Jockey Club, which maintains the official pedigree of all North American Thoroughbreds. During his tenure, The Jockey Club implemented several innovations, including the introduction of The Jockey Club Interactive, the world's first interactive Thoroughbred registration system.

Nicholson is the current chairman of the American Horse Council, and serves on the board of several other major industry organizations including the NTRA; the Thoroughbred Racing Association, which he helped form and where he served as the first chief operating officer; Equibase, the Thoroughbred Racing Protective Bureau; and the University of Kentucky Gluck Equine Research Foundation. He is a past president of the Thoroughbred Club of America and also served as vice chairman of the International Catalog Standards Committee.

For his many contributions to the industry, Nicholson received the Lifetime Service Award from the Thoroughbred Owners and Breeders Association, as well as The Jockey Club Gold Medal. In 2004, he was elected a member of The Jockey Club.

Nicholson's community involvement includes serving on the board of the Urban League, Commerce Lexington Inc., KET Commonwealth Fund, Transylvania University, the Dermontti Dawson Foundation, and Shakertown.

For more information about the event, visit www.ca.uky.edu/equine or e-mail equineinitiative@uky.edu.

Alexandra Harper is a UK equine intern and undergraduate majoring in communications.

LLOYD'S OF LONDON AND UK DEPARTMENT OF VETERINARY SCIENCE CONTINUE SUCCESSFUL PARTNERSHIP

Global insurer Lloyd's of London presented the University of Kentucky College of Agriculture a check for $45,000 on Sept. 22 in continuing support of *Equine Disease Quarterly*, an equine health research publication produced by the Department of Veterinary Science.

The award-winning publication provides timely, research-based reports on some of the most important issues facing the equine industry. The publication currently reaches more than 18,000 readers in 93 countries. Available on the Internet, its articles are regularly abstracted by a variety of scientific and lay equine publications worldwide.

"The Maxwell H. Gluck Equine Research Center serves Kentucky and the international equine health community with the latest information on equine health," UK President Lee T. Todd Jr. said. "Lloyds' sponsorship of the Equine Disease Quarterly makes it possible to reach this community with key information and strategies to mitigate disease. The Gluck Center, with Lloyd's help, exemplifies UK's commitment to research that makes a difference, in this case, to the world."

This 2009 donation represents Lloyd's 28th year of collaboration with the Department of Veterinary Science, with nearly $900,000 of support.

Lloyd's of London presents a $45,000 check to the UK Department of Veterinary Science. Among those at the presentation were (left to right): Charlie Moore, senior vice president, Lloyd's Kentucky; Lee T. Todd Jr., president of the University of Kentucky, and Patrick Talley, president, Lloyd's Kentucky.

"Lloyd's is very pleased to continue its long-standing support of the university's critical work in equine research," said Julian Lloyd, chairman of Lloyd's Livestock Committee and head bloodstock underwriter at Hiscox. "The distribution growth and reputation of the Equine Disease Quarterly is testament to this tradition of excellence."

Mats Troedsson, DVM, PhD, Dipl. ACT, chair of the Department of Veterinary Science and director of the Maxwell H. Gluck Equine Research Center, echoed President Todd's assessment.

"The Equine Disease Quarterly is a true success in the veterinary community. Practitioners from the U.S. and many other countries worldwide have commented to me on how this newsletter has become a valuable source of information to them and popular reading for clients in their waiting rooms. The unique distribution of the quarterly in more than 90 countries around the world may be unmatched within our profession."

"The *Equine Disease Quarterly* is a distinctive and valuable voice for the UK College of Agriculture," added Scott Smith, dean of the College of Agriculture. "The emphasis on practical knowledge, based on sound science, is a hallmark of land-grant college programs. We are proud of the Gluck Center for the value it places on delivering information to stakeholders the world over."

Lloyd's of London is a 322-year-old institution whose members underwrite risk in return for premiums and investment income. Recognized as one of the world's largest Thoroughbred horse insurers, Lloyd's remains committed both to supporting equine research and providing the insurance coverage essential to the well-being and prosperity of bloodstock interests worldwide.

Published four times yearly, Equine Disease Quarterly is available to subscribers at no charge. The co-editors, Roberta Dwyer, DVM, Dipl. ACVVP, Peter Timoney, FRCVS, PhD, and Neil Williams, DVM, PhD, Dipl. ACVP, are faculty in the UK Department of Veterinary Science.

Find the current version of Equine Disease Quarterly at www.ca.uky.edu/gluck/q_jul09.asp.

By Roberta Dwyer, DVM, MS, Dipl. ACVPM.

UK'S LDDC: OUT WITH THE OLD, IN WITH THE NEW

The University of Kentucky's Livestock Disease Diagnostic Center (LDDC) made a long-awaited switch to a new online file-keeping system known as Laboratory Information Management System (LIMS) in early August.

LIMS will serve as an integrated online system for farmers to report incidence of disease by county, and it will correlate with the technology used by the state veterinarian's office. It will link incoming information from the state veterinarian's office, the Breathitt Veterinary Center at Murray State University, and the LDDC.

The system will help the LDDC track disease reports in near real time—a feature that has not been available before—and prepare for infectious outbreaks or other disease situations, particularly those affecting the state's equine population. The goal of the new system is to avoid pandemics similar to the mare reproductive loss syndrome (MRLS) occurrences in 2001. While not a contagious disease, MRLS resulted in losses to Kentucky's horse industry of an estimated $340 million and about 30 percent of that season's Thoroughbred foal crop.

By organizing disease incidences by geographic location, scientists and veterinarians can predict trends and get a jump-start on treatments for seasonal illness (such as MRLS). The system makes information available to farm managers and private practitioners, so they can administer appropriate

UK's Livestock Disease Diagnostic Center

vaccinations and implement necessary protocols to keep up with any predicted rise in diseases.

LDDC Director Craig Carter, DVM, PhD, Dip. ACVPM, said,"In the short term, it helps to get diagnostic test results down to the farm level in an accurate, timely fashion (to) help the local vet manage single outbreaks. In the long term, it's part of a statewide animal health information network that will give us a broad awareness of what's happening all across the state."

LIMS also will aid in maintaining agricultural biosecurity by detecting potential outbreaks of diseases caused by any previously unidentified pathogens.

The new system will simplify recordkeeping for LDDC and its clients by delivering lab reports and invoices electronically. Carter asks clients to be patient and report any problems they experience as they adjust to the new technology.

For more information contact LDDC at 859/253-0571 or visit www.lddc.uky.edu/.

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

CONTROLLING AMMONIA IN HORSE STALLS

One of the irritating compounds that can accumulate inside a horse barn is ammonia (NH3). High concentrations of ammonia in the air can irritate the mucous membranes of the eyes, nose, and mouth and possibly increase the susceptibility of animals to respiratory infections. In animal buildings aerial ammonia arises from urine and feces, so ammonia concentrations are usually highest near the floor.

Researchers at the University of Kentucky have examined the usefulness of an ammonia-absorbing compound applied to floors to control ammonia concentrations in horse stalls (Pratt et al, 2000, *J. Eq. Vet. Sci.* 20:197.) A commercially available ammonia-absorbing product (Sweet PDZ, Steelhead Minerals Inc.) designed for daily application to stall floors, was tested in a four-stall barn containing mature Thoroughbred geldings. The dirt-floored stalls were cleaned every morning and bedded with straw.

All stalls were tested in the control condition (no ammonia-absorbing compound applied) and in the treated condition (ammonia-absorbing compound applied after cleaning in the morning). The researchers measured aerial ammonia concentrations expressed as parts per million (ppm) in two locations: near the horses' heads with a device attached to their halters, and near the floor in the morning before the stalls were cleaned.

(AMMONIA ...)

The ammonia-absorbing compound did not completely eliminate ammonia from the air in the stalls. However, stalls treated with the ammonia-absorbing compound had lower ammonia concentrations near the head and near the floor than the untreated stalls. At the end of two weeks, ammonia concentrations near the floor were about 25% lower than in the untreated stalls.

SAVANNAH CRADDOCK

Applying ammonia-absorbing compound in stalls can reduce ammonia concentrations by 60% or more.

The researchers suggested the extent of the reduction in aerial ammonia might have been greater if measurements had been taken closer to the time of application instead of the morning after application. For example, when ammonia concentrations above three urine spots were measured before and 15 minutes following application of the ammonia-absorbing compound, ammonia concentrations were reduced by 60% or more.

In addition to evaluating the effect of the ammonia-absorbing compound, the researchers in this study also documented changes in aerial ammonia concentration over the two weeks the geldings were kept in the barn. Ammonia concentrations remained relatively low during the first few days horses occupied the stalls, but then they increased rapidly, particularly near the floor. In the untreated stalls ammonia concentrations near the floor exceeded 200 ppm after seven days, even though the stalls were cleaned daily. The level of aerial ammonia that is unhealthy for horses is not known; however, levels of 200 ppm ammonia are higher than those found to produce negative effects in other animals.

In this study ammonia concentrations measured near the halter remained relatively low in both treatment groups. Thus, it seems likely these normal adult horses were not exposed to a high level of ammonia. However, for foals or sick adult horses that spend significant amounts of time lying down, high ammonia levels near the floor might present a respiratory challenge. Application of an ammonia-absorbing compound to stall floors might reduce the ammonia exposure and possibly enhance well-being.

Laurie Lawrence, PhD, is a professor in the University of Kentucky's Department of Animal and Food Sciences.

UPCOMING EVENTS

November 3, Distinguished Industry Lecture Series kicks off inaugural event with Nick Nicholson, president of Keeneland, sharing his perspective about Keeneland and the racing industry. The event is at 6:30 p.m. in the Seay Auditorium located in the UK Agricultural Science Building.

November 19, Imported Diseases, Peter Timoney, MVB, PhD, FRCVS, Frederick Van Lennep Chair. This is part of the Department of Veterinary Science Equine Diagnostic and Research Seminar series. Location: LDDC conference room. 4 p.m.

Jan. 20-21, 2010, 8 a.m. – 5 p.m., Gluck Equine Research Center inaugural Stud Managers' Short Course. The course is intended for owners and managers of all horse breeds and will feature lecturers on reproduction, nutrition, health, pasture management, economics, and marketing from a panel of experts. Location: Fasig-Tipton Sales Pavilion. Please note that this date is a change from Jan. 8 and 9, as originally announced.

The above listings are events in which faculty and/or staff members from the UK Equine Initiative and/or Gluck Equine Research Center are participating.