

Equine Guelph

Update

Winter 2011



helping horses for life

Equine Industry Unites on International Safety Initiative

Equine Guelph + 20 Partners Support Youth Safety Workbook

Equine Guelph, with the support of 20 industry partners from Canada and the United States, is launching a 20-page bilingual interactive workbook titled *Danger Detective on the Horse Farm*, which teaches equine safety to youth through fun, engaging activities.

Horses continue to be the #1 cause of agricultural animal injuries to our youth; 67% of animal-related injuries to kids (19 and under) are caused by horses. In addition, machine run-overs are the #1 cause of fatal injuries to youth on farms (Source: Canadian Agricultural Injury Reporting program). The combination of horses and equipment plus kids can add up to a disaster waiting to happen.

The way to keep our children safe is through education, and Equine Guelph has rallied with the industry to present this significant project. Major partners include: Canadian Agricultural Safety Association (CASA), Equine Guelph, Kubota Canada, SSG Gloves, Saddle Up SAFELY, System Fencing and Tack, University of Kentucky College of Agriculture (The Equine Initiative), University of Kentucky HealthCare, Alberta Farm Safety Centre and Workplace Safety Prevention Services. All equine federations are on-board, including: Alberta Equestrian Federation, Equine Association of Yukon, Fédération équestre du Québec, Horse Council British Columbia, Island Horse Council, Manitoba Horse Council, New Brunswick Equestrian Federation, Newfoundland Equestrian Association, Nova Scotia Equestrian Federation, Ontario Equestrian Federation and Saskatchewan Horse Federation.

Partners will be distributing 55,000 workbooks to kids aged 10-12 years, available through: EquiMania! (Can-Am and The Royal), federation exhibits at shows and events, industry retail locations, classrooms (in Alberta) and federation mailings.

This project was made possible by a significant funding contribution from CASA, a national non-profit organization dedicated to promoting health and safety on Canadian farms and ranches. "CASA is pleased to support an initiative within this unique agricultural industry; one that is uniting to create a strong partnership to keep its kids safe," says Marcel Hacault, executive director of CASA.

For more information on how to obtain a *Danger Detective on the Horse Farm Activity Workbook*, please contact your provincial/territorial equine federation.

-By: Henrietta Coole



Photo by Gary Brown

Partners of Equine Guelph's safety initiative "Play Safe. It's HorseSense!" gather and have some fun modeling horse hats that bear a safety message for kids. Back row (l - r): Jackie Bellamy, Equine Guelph; John Aird, Workplace Safety Prevention Services; Gayle Ecker, Equine Guelph; Catherine Barker, Ontario Equestrian Federation; Susan Raymond, Equine Guelph; Ed James, SSG Gloves; Brenda Snape, SSG Gloves. Front row (l - r): Henrietta Coole, Equine Guelph; Dwayne Job, System Fencing and Tack; John Gilliland, Kubota Canada; Tammie Karsten, Workplace Safety Prevention Services.

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UNIVERSITY
of GUELPH

CHANGING LIVES
IMPROVING LIFE

Gene Genie

Unbottling Genetic Mysteries

Biological science was forever changed when the human genome project mapped out the sequence of our DNA in 2003. It remains one of the largest single investigative projects in modern science. This project made parallel studies possible and the genetic make-up of the horse was completed in 2007.

OVC researcher, Dr. Scott Weese is going boldly forward — looking into what has been referred to as the “2nd genome” by studying the microbial residents of a horse’s gut.

When you consider that a horse is thought to have 100 times more bacterial cells in its intestinal tract than ‘horse’ cells in its entire body, the scope of this 2nd genome becomes apparent. New and innovative technology recently developed to study this area is simply groundbreaking. One major breakthrough has been the development of ‘**Next Generation Sequencing**’ and this fall, the University of Guelph was the first laboratory in Canada to obtain a new Next Generation Sequencing system, the Roche JS Junior. With the equipment and

technology to perform Next Generation Sequencing, and the expertise present at the University in equine infectious diseases, the horse industry stands to reap the benefits.

Currently, diagnosis for diseases pertaining to gut function is difficult, mainly because little is known about the gut in health or disease. For example, even with severe diarrhoea (colitis), a cause is only identified in 30 – 40% of horses. Next Generation Sequencing will allow researchers to explore huge components of DNA and assess many

bacteria at once (between 70 – 100,000 in one fecal sample). This is a giant leap forward from traditional molecular diagnostic methods which are very time consuming and look at only one sequence of DNA at a time, an astronomical advance from traditional culture-based methods. “We are looking at faster and better ways to diagnose disease” says Weese. “Little is known about gut content! If we can figure out what the gut normally looks like, we can figure out ways to treat and prevent disease.

interacting with the body” says Weese. “We are trying to sort out what goes on, what bugs are present, how they interact, how they change and how we can potentially change them.” Better understanding of gut flora will provide important information regarding effective feed conversion and could have applications for diagnostics surrounding colitis, diarrhea, colic and lead to better prevention methods. Results could lay the foundations for future applications using probiotics to improve gut health. Intestinal



Next Generation Sequencing allows researchers to explore huge components of DNA and assess many bacteria at once.

Photo provided by 454 Sequencing
© Roche Diagnostics

Imagine the cost savings to the industry if new ways to prevent colic (the #2 killer right behind old age) could be identified, saving owners from expensive treatment and potentially saving horse’s lives.

There are several types of bacteria in the gut we don’t even have a name for yet.”

Through studying the complex bacterial population of the gut, which is comprised of trillions of bacteria and up to 1000 different bacterial species, Dr. Weese will be examining the components that are critical to health. There is more evidence now drawing links between gut function and a healthy immune system or metabolic diseases, and even potentially obesity and cancer. “There is a huge potential impact because the bacterial population is so complex and it is

disease is a common problem in the horse, ranging from mild colic to rapidly fatal colitis (severe diarrhoea). The gut microflora is probably involved in various other more common conditions such as gas colic and pasture-associated laminitis, so an understanding of what happens in those conditions may be useful to help determine better ways to prevent them. Next Generation Sequencing could change how the next generation uses diagnostics.

-By: Jackie Bellamy

Let Food be Thy Medicine

So Much More Than Just Minty Fresh



Photo by Dr. Michael Lindinger

Dr. Wendy Pearson's research finds mint can play a role in reducing arthritis symptoms

In days of yore an ounce of prevention was worth a pound of cure and the pharmacy was in the garden.

Pardon the pun, but drugs of today hold their roots in plant products. Take aspirin for example; Hippocrates of ancient Greece used willow leaves which contain salicylic acid to reduce fever and relieve the aches of a variety of illnesses long before the synthesis of acetylsalicylic acid.

"Medicinal plants are the major resource for pharmaceutical drugs," says Dr. Wendy Pearson, (Post-Doctoral Research Fellow; Dept. Plant Agriculture). Pearson has been documenting some very exciting findings using an extract of Spearmint (High-Rosmarinic Acid Mint or HRAM) to inhibit pain in joint cavities.

With all the herbal products on the market today promising magic and miracles, how does one separate folklore and myth from fact? Wendy proudly explains that the bioactivity of HRAM is supported by 3 years of scientific study, both in cell culture experiments and in an 8-horse equine study. Results from horses in her study support an anti-inflammatory role of HRAM which may render it successful in reducing symptoms and progression of arthritis.

"Lameness and arthritis are major causes of lay ups. The research is exciting because it

places solid scientific data behind development of a product with the potential to reduce time off and may prove a better choice than Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)," Says Dr. Pearson, a three-time Guelph grad now studying medicinal plants for horses.

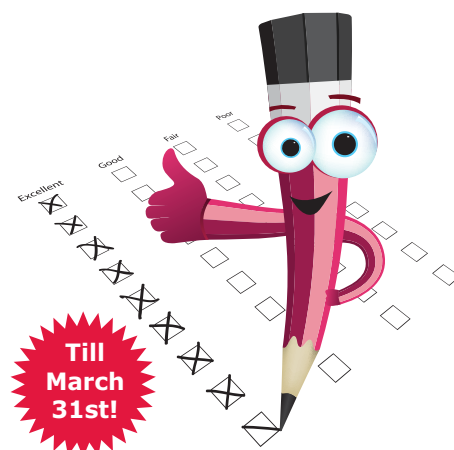
Although this mighty mint is not on the market yet, license options are in the works and product launch is not far away. The benefits to horse owners include palatability and ease of administration. Using mint to treat arthritis may prove a viable alternative to using NSAIDs like phenylbutazone, particularly because it does not exhibit the side effect of speeding up cartilage breakdown.

Dr. Pearson's equine study, funded by OMAFRA, has also generated interest for the applications of mint extracts as a treatment for humans with osteoarthritis. OMAFRA is also funding the human study. Dr. Pearson is funded by Selected Bioproducts Ltd and an Industrial Research Fellowship from the Natural Sciences and Engineering Research Council. Others involved in this research are Dr. Laima Kott (Research Scientist; Dept. Plant Agriculture), Dr. Ron Fletcher (Research Associate; Dept. Plant Agriculture) and Dr. Mark Hurtig (Dept Clinical Studies).

-By: Jackie Bellamy

Has Your Voice Been Heard?

Equine Industry Survey 2011



Thank you to all the participants who visited www.EquineGuelph.ca and completed the industry survey launched on Feb 1st 2011. Equine Guelph marches ahead into their 8th year of service — continuing to develop award-winning programs and responding to industry needs. Knowledge gained from the survey results will allow Equine Guelph to continue to identify areas of research that are of highest priority to the horse industry, improve and develop equine education programs, enhance communication of horse-related information to the horse industry and identify trends among different equine industry groups.

If you have not participated in Equine Guelph's Survey - Do it before March 31st!

You can help us plan ahead to make our next 10 years a continued success!

A Year to Remember for Equine Guelph!

2010 Puts EquiMania! on the World Stage



Photo by Sharon Grose

Bring
EquiMania!
to your Event

Contact
horses@uoguelph.ca

EquiMania!, the most hands-on attraction at the Kentucky Horse Park!

From debut local performances at the Outdoor Equine Expo in Arkell to the 860 kilometre journey to the first-ever North American hosting of the Alltech FEI World Equestrian Games (WEG) - EquiMania! has hit an all time record for exposure!

For 16 days, Lexington's Kentucky Horse Park hosted 507,022 spectators and most are now EquiManiacs! Many commented they had never seen an equine display of this magnitude. Equine Guelph's display was touted as "the most hands-on attraction at the horse park." 62,000 children came to WEG. Over 200 school kids lined up at a time to see EquiMania!. Staff spoke with residents of more than 50 countries and our online courses were a hot topic due to the variety and quality of our scientifically based programs. "Kids are hungry for equine knowledge," proclaims Gayle Ecker, Director. "No one left EquiMania! without learning something new about horses, their care and safety."

Many visitation inquiries from equestrian organizations all over the world resulted from our presence at the Kentucky Horse Park. This feat could not have been achieved without excellent sponsors and superb volunteers.

Partnerships and loyal, committed sponsors have made EquiMania! a mainstay at shows like the Can-Am All Breeds Equine Emporium and The Royal Winter Fair. After another successful Can-Am, Ross Miller, president, stopped by Equine Guelph to present a cheque, donating funds to the educational programs. Ross commented, "I am pleased to give this cheque to Equine Guelph. Part of Can-Am's mandate is to give back to the horse industry. We are very fortunate to be in a province where we have Equine Guelph at the University of Guelph."

The 2010 Royal Agricultural Winter Fair allowed over 23,000 eager school kids the opportunity to learn about safety and horse sense while navigating their way through the

Family Fun Zone in which EquiMania! was a main attraction. "We are delighted with our new location at the Royal. "This helps increase awareness of the horse industry and explain viable careers awaiting youth in the industry," says Gayle Ecker, director, Equine Guelph.

Equine Guelph thanks all their volunteers and sponsors for another successful year at the Royal: Kubota Canada, Ontario Equestrian Federation, Pfizer, Shur-Gain, SSG Gloves, Standardbred Canada, System Fencing and Workplace Safety & Prevention Services.

Equine Guelph also thanks all the sponsors who made the presence of EquiMania! at WEG a reality: Alltech, UK HealthCare, Kentucky Children's Hospital, Pegasus, Saddle Up Safely, Safe Kids (Fayette County), SSG Gloves, Triple Crown and the Kentucky Horse Park.

Never before has EquiMania! spent this much time on the road covering so many high profile events all in one year.

Where Research Dollars are Coming From

How This Translates Into Practical Applications for you, The Horse Owner

Over the past 2 years, our Newsletters have brought you an increasing number of research articles funded through Equine Guelph. It is easy to argue that Equine Guelph research is important to the benefit of the health and welfare of horses, but the question 'who should fund it' arises? Three of the funding partners of Equine Guelph have long recognized the value of research – the Ontario Racing Commission, the Horsemen's Benevolent and Protective Association of Ontario and the E.P. Taylor Foundation (now administered through the University of Guelph). These agencies provide the dollars shown in the accompanying graphs, and have sponsored approximately 70 projects in the past 5 years, and we thank them profusely for their foresight.

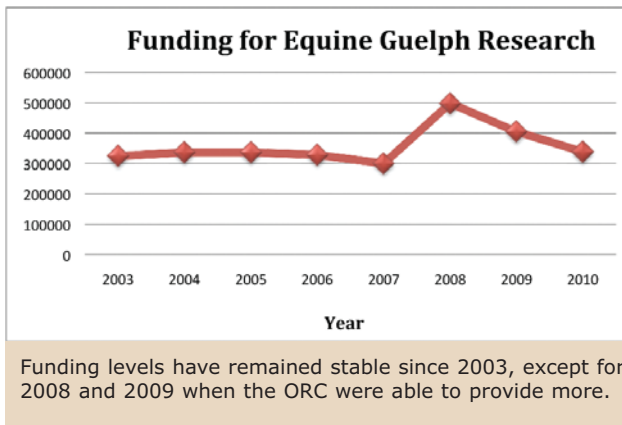
The University of Guelph audit found an incredible 10 to 1 ratio of the return-on-investment of dollars expended on applied agricultural research sponsored by OMAFRA at the University.

Dr. Wendy Pearson's work on medicinal

plants is an example of applied research, and should give marketable products in the near future.

Dr. Scott Weese's work on the genetics of bacteria is basic science. It may take time to develop usable products from the data, but the drugs will be powerful and targeted antagonists of specific diseases once they are developed.

Another project showing incredible returns to the horse industry is Prof. Peter Physick-Sheard & Dr. Kimberly McGurrin's transvenous electrical cardioversion (TVEC) treatment. 100% of the racehorses treated for atrial fibrillation at the University of Guelph have gone back to work. This surgery has become common practice and has been adopted in the U.K and U.S. Prof. Physick-Sheard's work has been attracting interest from human researchers as well.



We are looking at ways to increase funding, because we believe that expanding the research base will enhance the value of the results to the industry. Future Newsletters will report on our efforts recruiting new sources. The results of the survey (see page 3) will help us plan this exercise. We have already made changes in our appeal for donations – even small donations add up – and this is one way you can help right now.

-By: Dr. Jeff Thomason
Co-chair Equine Guelph Research Committee

We Need Your Help

Equine Guelph is making a change in our fundraising efforts in order to save every dollar we can. Appeals will no longer be sent out as exclusive mailing campaigns. To be more efficient and cost effective, donation forms will be distributed with our spring and fall Newsletters.

We value your support.

For donations by phone or mail, please contact: **1-888-266-3108**.
To donate online please visit: **www.EquineGuelph.ca** and click on "Donations".

Donations to Equine Guelph can also be made by credit card (Visa or Mastercard) or by cheque. Please make cheques payable to University of Guelph/Equine Guelph. An official tax receipt will be sent for donations over \$10. Our charitable registration number is 10816 1829 RR 0001.

Please return to:

Equine Guelph
c/o Alumni House
University of Guelph
Guelph, ON, N1G 2W1



Equine Guelph also offers a memorial program to honour deceased horses or people. Please call the office for details.

UPDATE ON EQUINE GUELPH'S WORK



Photo by Dean Palmer

Do Spring Cleaning for Your Horse's Health

Equine Guelph Tools in Season

Spring has sprung! This is the season of birth and renewal, fresh energy, starting over and organizing life – for yourself and your horse.

How about a spring cleaning of your horse's health records?

Horse Owner Spring Cleaning List:

- ✓ Have I given my horse an overall health check lately? (pay special attention to body condition score following winter)
- ✓ Vaccinations up to date?
- ✓ Booked an annual vet visit?
- ✓ Deworming needs assessed?
- ✓ Checked my horse's teeth lately?
- ✓ Farm up to snuff for disease prevention?
- ✓ Farrier needs addressed for spring?
- ✓ New feeding program in place for the change of season?

Equine Guelph makes spring cleaning a snap with help from its online healthcare tools. Go to www.EquineGuelph.ca and check out our interactive, educational tools created for horse owners: Vaccination Equi-Planner, Biosecurity Risk Calculator, Journey through the Joints, The Horse Health Check and watch the EQUID Blog for developing news.

Equine Guelph thanks the following animal health companies for sponsoring our tools:



Mark your calendar!

March 18 – 20

EquiMania! at
Can-Am Equine All Breeds Emporium

March 25 – 26

Groom One Orientation
Country Hill Farm, Goodwood, ON

April 23 & 24

Equine Anatomy Workshops

May 9 – July 31

Groom One Online Course

May 9 – August 7

Equine Guelph's Online Courses
(Summer Offerings)

June 10 – 12

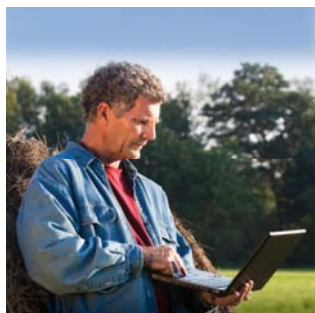
Canada's Outdoor Equine Expo

November 4 – 13

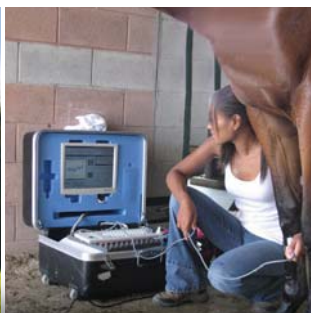
EquiMania! at
the Royal Agricultural Winter Fair

**Anyone wishing to excerpt
Equine Guelph should contact:**

Jackie Bellamy, ext 54205
jbellamy@uoguelph.ca



educating
horsepeople



funding industry
research



promoting health
& performance



EQUINE GUELPH
helping horses for life