



Equine Guelph



Annual Report
May 1, 2021 – April 30, 2022

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Executive Summary

Equine Guelph has continued with its unwavering commitment to provide programs that will help to support the horse industry, the horses and the participants of the industry as the awareness of equine welfare continues to grow in Canada and beyond. The challenges of the COVID pandemic may be continuing, however, there have been substantial improvements and there is hope that the end is near. The team of Equine Guelph has continued in 2021-2022 to build new foundational programs, develop new strategies for our partners, donors and sponsors while continuing to serve our industry with research funding on industry priorities and evidence-based information in our industry communications and educational programming.

The mandate of Equine Guelph, developed with its official opening in July, 2003, is to serve the equine industry by funding the industry-driven research program at the University of Guelph. The new knowledge generated from these studies is then transferred into plain-language summaries for the growing industry communications program and developed into updated curriculum for our multi-level education programs to deliver new resources and evidence-based information to horse owners and caregivers in a practical format, allowing them to “Take it the Stable”. In this, our 19th year of operation, Equine Guelph continues with its unique partnership of the equine industry in Canada and the University of Guelph.

Several new programs for the education and communications programs were developed this year, most notably, the Ontario Equine Education and Employment Program (OEEEP), in response to challenging staff shortages. The first cohort began in November, 2021, thanks to funding from the Ontario government to support employers looking for much needed staff for the industry and newcomers looking to get started in the industry. Funding for five cohorts was included in the new partnership program with the Ontario Harness Horse Association (OHHA) and VPI, Inc. (an employment assistance company). Matching of new students to employers will be ongoing and continued support of the industry helps to build this program for the future.

The Advisory Council of Equine Guelph, which forms the basis of the partnership with the equine industry in Ontario and across Canada, combines a strategic plan that results in academia and industry having discussions for priorities and working together for a stronger equine industry today and tomorrow as we develop new research programs, new education/training for the industry and communications outreach through many channels. This important approach helps support the Social License to operate as it supports health, welfare and safety at multiple levels.

Research on industry-identified priorities has continued this past year, despite the challenges that have faced many researchers. Important knowledge for long-term benefit of health in horses has been gained and will continue as strong foundations are being developed for long-term programs in many areas. This is assured and supported by the many hours of volunteerism and oversight from our Research Committee, ensuring the funds are used on current priorities and are of high scientific value. Funding is received from the racing sector through Ontario Racing and the Horsemen’s Benevolent and Protective Association of Ontario (HBPA), and through the non-racing sector from Ontario

Equestrian, along with important support from our donors. Further details on the research programs are presented in this report, including publications and national/international speaking engagements, underscoring the research excellence that has developed from this partnership. In 2021-2022, an allocation of \$287,337 was made to support research projects.

Special thanks is extended to Dr. Darryl Bonder, a long-time dedicated member of the Research Committee for his long years of volunteerism and service to the industry through this committee. His careful review of the research for its scientific merits, practical application of the knowledge for the industry and support of health and welfare was exemplary.

Opportunities to attend events and tradeshow continued to be restricted, yet great progress has been made in several areas. Equine Guelph's full investment into the online learning sphere has been a valuable strategy that started in 2002, with the first online course offered for equine studies by an accredited educational facility. Now, in 2022, this program continues its growth as an internationally recognised program with several awards. The on-going redevelopment and updating of courses for the online Diploma and Certificate programs for Equine Science, Welfare and Business is now largely completed. Our students are enjoying the new technical enhancements and updated information and approaches for quality online experiences for both our short courses and our 12-week courses. Many of our students reported that the courses were a "life-line" during another stressful year.

Given our early success for online learning, and our response to the recognition that "time and money" was a barrier for education, Equine Guelph invested in the development of a new bespoke online learning platform in 2015. TheHorsePortal.ca was developed specifically for our needs to provide cost-effective short courses for the horse industry on focused topics as a basis for building micro-credentials. This past year has seen continuation of the growth pattern for this program and new courses continue to be added and developed, with new partnerships developed with the racing industry, provincial equine federations, sponsors and other partners. More details are presented in this report on new courses and developments of TheHorsePortal.ca.

Restrictions continued to impede offering EquiMania! exhibits at tradeshow and events, however, efforts continued to build the online presence of this important youth program that attracts interest in the equine industry in that all-important sector for long-term viability of our industry – the youth of today. New activities have been added to the EquiMania! site on TheHorsePortal.ca. Equine Guelph will look for opportunities with our partners to bring EquiMania! to introduce our program to a whole new group of youth and families in 2022-2023, including Family Days at racetracks, fairs, equestrian events and tradeshow. Youth activities continue to be promoted online to sustain youth engagement.

The staff of Equine Guelph would like to share sincere appreciation to our Advisory Council and Research Committee members for their ongoing support that has been a valuable part of our growth and success. The important support of our sponsors and donors has been wonderful and greatly appreciated as it helps to support our ongoing

and developing programs to support health, welfare and safety in our industry and as always, is greatly appreciated.

Equine Guelph acknowledges with sincere appreciation the Council partners as they continue to provide support and guidance for the programs of Equine Guelph on industry priorities – the Alcohol and Gaming Commission of Ontario, the E.P. Taylor Equine Research Fund, Equestrian Canada, the Horsemen’s Benevolent and Protective Association of Ontario, Ontario Equestrian, the Ontario Harness Horse Association, Ontario Racing (which includes CTHS, COSA and SBOA), Ontario Ministry of Agriculture and Food, Standardbred Canada, the Quarter Racing Owners of Ontario Inc., Ontario Association of Equine Practitioners, and the University of Guelph.

This annual report provides the details on the 2021-2022 activities of Equine Guelph and recognizes the partnerships that make these achievements possible for the benefit of the equine industry and the health and welfare of the horse.





Dear Partners and Supporters of Equine Guelph,

It is with a sense of hopefulness and optimism that we review the year that has passed and look to the future for Equine Guelph and the horse industry. As our society gains traction on opening up business and travel opportunities, there is a shared optimism that the worst is behind us. The challenges facing us personally and in the equine industry will not easily be forgotten but the restrictions presented to us in the last two years are now easing and there is determination that life will move on.

Equine Guelph responded quickly in the beginning of the pandemic to provide much needed assistance for biosecurity issues, Covid-related information and the 'For the Herd' learning community along with a short business course for horse owners and this has continued. The pace of development of new online programming and offerings continue to stay connected and increase awareness of learning opportunities, thus building on the development and enhancements of the online courses that started, fortuitously, for the horse industry in 2002.

Equine Guelph has been a pioneer in online education and training offerings with the first course offered in May 2002. Despite some initial skepticism about the value of learning about horses online, this has turned out to be an insightful decision as we have seen many major changes in the online world over the last two years. Online learning is now normalized and a growing number of students prefer this style of learning. This interest has provided an important revenue stream for Equine Guelph as well as securing its position in the online sector for equine educational offerings.

While some restrictions remained in place, the research programs were getting back to more normal operations. Progress was made on several fronts for horse health and diagnostics.

As we look ahead, there is good progress resuming the Equine Guelph programs and this underscores the need for and the value of partnerships working closely together to achieve mutual goals. Equine Guelph, the Centre created by the industry for the industry, looks forward to continuing and strengthening the programs in support of the equine industry for research, education/training, and communications in priority areas. We also sincerely thank Dr. Darryl Bonder for his long service to the Research Committee and his important insights.

We would like to extend our thanks and appreciation to all the associations throughout these challenging years as they dedicated time to be contributors and advisors for the Advisory Council, Committees, donors, supporters, and partners for their continuing support. Our achievements are a result of your continuing support of Equine Guelph.

Yours sincerely,

A handwritten signature in black ink, appearing to read "J. Wichtel".

Dr. Jeffrey Wichtel
Dean, Ontario Veterinary College

A handwritten signature in black ink, appearing to read "A. Patterson".

Mr. Al Patterson
Co-Chair, Equine Guelph

Introduction

“The Centre for the horse owner at the University of Guelph” -- Equine Guelph, founded in 2003, represents a unique partnership created “by the industry for the industry” with the University of Guelph to provide a portal for research, education/training, and communications. Support of health, welfare and safety continue to be dominant themes for our industry and for the public and remain as the important mandate for Equine Guelph. Concerns for sustainability and Social License to Operate continue to dominate discussions at many levels due to the major impacts seen in the last few years. The partnership of Equine Guelph and the industry, particularly in light of the ongoing events of 2021 and 2022, has proven to be an effective approach over 19 years to show the return on the investment in support of the industry.

The Advisory Council of Equine Guelph includes the leaders of the industry, along with members of the University of Guelph. Membership includes Equestrian Canada, The Horsemen’s Benevolent and Protective Association of Ontario, Ontario Equestrian, Ontario Racing, Ontario Harness Horse Association, Standardbred Canada, Quarter Racing Owners of Ontario Inc., Central Ontario Standardbred Association, Canadian Thoroughbred Horse Society, Standardbred Breeders of Ontario Association and the University of Guelph. Funding also includes revenue from the E.P. Taylor Equine Research Fund as an important contributor to the research program.

The Co-Chairs of the Equine Guelph Council, OVC Dean, Dr. Jeff Wichtel and Mr. Al Patterson, oversee the funding process and program initiatives. Since its inception in July 2003, Equine Guelph continues to partner with the industry in the development of programs in service to the industry. The Advisory Council provides the industry with important opportunities for discussions and input for strategic directions and development of programs reflecting current priorities. The members of the Advisory Council and the Research Committee are integral to the process of development for the research, education and communications programs and will continue to play an important role responding to the changing events.

This Annual Report for the 2020-2021 fiscal year highlights progress, achievements and challenges of Equine Guelph and its programs in service to the equine industry throughout the province and across Canada.

Programs of Equine Guelph

Research

Research funding from the equine industry continues to contribute to an effective research program making significant progress annually on priority areas by University of Guelph researchers.

Equine Guelph conducts an annual competition for research funding to be based on industry priorities as identified by the Research Committee. Proposals are sent out for external peer review from other universities for scientific merit. The committee then allocates the funding according to priority area and merit. This ensures the development of new and developing evidence-based information to support health, welfare and performance of horses. This process supports the needs of the industry as met through the available funding.

Research funding allocated was \$256,947 for research projects for 2021-2022.

Eight new projects were accepted for funding on priority-designated topics for projects including pulmonary biopsies, the gut biome, gastrointestinal diseases, tendonitis and arthritis treatments. There are also 26 continuing projects that have received their funding in full, and whose researchers will be updating the Research Committee with their progress in Fall 2022. Detailed information on those studies is found in the Research Projects for 2021-22 in the Appendices including the lay summaries and their application to the industry priorities.

The dedicated work and oversight of volunteer designated representatives ensures that quality, priority-based projects continue to be funded and there is annual reporting of progress and effective use of funds. Information produced by publication of the studies gives further benefit to the program as it is distributed to the industry through the communications and education programs of Equine Guelph and to practicing veterinarians, students, and industry participants at all levels in both the racing and non-racing sectors. This is an effective process to ensure return on the investment and provide the industry with a growing foundation of knowledge at all levels. Equine Guelph relies on industry groups to further distribute this knowledge to their membership by sharing research stories, press releases and researcher interviews. This helps disseminate knowledge to support horse health, welfare, performance and safety.

The contributions of the funding group and their representatives are greatly appreciated. Equine Guelph would also like to acknowledge the long and dedicated service to this committee by Dr. Darryl Bonder, who has represented the priorities and interests of the HBPA since the development of this committee as he has recently retired from this position.

Funding for the research program comes from the HBPA, the E.P. Taylor Research Fund, Ontario Racing (Horse Improvement Fund), as well as individual donations. Industry funding is critical for leveraging funding from other agencies to fund research at a higher level.

Dr. Koch, Co-chair of the Research Committee, welcomes discussions with the industry partners to ensure that strategic directions and planning are ongoing to expand the research program in support of the industry.

Education and Training

An industry grows and thrives when its participants are encouraged to engage in education and training. Industries that engage in ongoing learning and development of their workforce can thrive and survive during challenging times. Surveys conducted by Equine Guelph showed clearly that time constraints and available money could impede the pathway of continuing education for many in our industry, although 99% of the survey respondents indicated that education was very important to the industry.

Equine Guelph continues to respond to industry needs, with the development of the first online program for equine education that was sanctioned by the UofG Senate, with the first course on offer in May 2002. That program grew to over 20 online courses offering three certificates in Equine Science, Business and Welfare, and a Diploma in Equine Studies from the University of Guelph. This program has seen significant growth during the last two years, attracting horse enthusiasts and professionals from over 40 different countries and placing Equine Guelph as an acknowledged pioneer in the development of online programming. The Certificate/Diploma programs have recently completed a full review and revision of courses to ensure they are up to date with new information on health, welfare and safety and include internationally recognised instructors and guest speakers.

The 12-week program continued to see over 1,000 students enrolled in our courses in 2021-2022, from over 18 different countries and the program attracted over 320 new students. Our total student population includes students from over 40 different countries, all sharing their love of learning about the horse.

Education Webinar Series

In partnership with the Office of Open Learning and Equine Guelph, a special webinar series was offered with 6 new webinars presented:

Turning Science into Horse Stories, Emily Esterson.

Routine Equine Handling Using Low Stress and Cooperative Care Techniques, Dr. Robin Foster.

What's Next How to Restart Your Business After a Shutdown, Kathy Fremes & Dr. Julie Fischer.

Equine Nutrition Series - Part 1 - Broodmare Management and Nutrition

Equine Nutrition Series - Part 2 -Feeding the Suckling, Weanling and Yearling

Equine Nutrition Series - Part 3 - Feeding and Management of the Performance Horse, with Don Kapper for the series.

This resulted in 695 registrations for the series and 1376 new subscribers to the Office of Open Learning education e-mail list and almost 6000 visits to the landing page for the program.

EquiMania!

Our EquiMania! Exhibit remained “stall-bound” for the year and was not able to travel once again. However, monthly online learning activities continued to be developed and promoted through social media channels and the e-news. Equine Guelph looks forward to taking the EquiMania! Exhibit out to racetrack events, fairs and other events when it is feasible to do so.

Funding for the education program comes through tuition/workshops, corporate sponsorships, for 2020-2021. This is invested into new and ongoing program development, online education programs, and virtual presentations and webinars.

Updating Schedule for Fall 2020 Completed

Stewardship in the Equine Environment
Equine Nutrition research updates
Advanced Equine Behaviour

Updating Winter/Spring 2021-22 Completed

Equine Genetics
Advanced Equine Health through Nutrition
The Equine Industry
Equine Welfare
Global Perspectives in Equine Welfare
Management of the Broodmare, Stallion and Foal
Equine Functional Anatomy

The Horse Portal short courses

The new trend in online education is to provide “micro-credentials” for quick learning of knowledge or skills. With the development of The Horse Portal in 2016, Equine Guelph developed this concept with our short courses for horse owners, providing a cost-effective short course that focused on developing practical knowledge and skills on specific equine-related topics. This has allowed more industry participants to join our learning community on TheHorsePortal.ca. Our partnerships across Canada with the equestrian federations and racing groups plus other partners helped us build this unique program offering practical and applied knowledge in each course over the last six years.

In the first year of opening The Horse Portal in 2016, we were able to develop and offer 2 courses – one on the National Equine Code of Practice for the Care of Horses and one on Canada’s Equine Biosecurity standard. With further support and funding from sponsors, industry partners, AGCO and CAP, this program has now expanded to offer 13 portal courses in 2021-2022 providing over 2,817 students the opportunity to access this new format for learning.

With the interest high in prevention of lameness and injury in horses, a new course was developed for the non-racing sector, Sport Horse Injury/Lameness Prevention and Care in April, sponsored by CapriCMW.

New in 2021 was the offering of bundled courses for tuition savings, and continuation of the bundling of courses into the new certificates. The Equine Emergency Preparedness Certificate and the Equine Facility Management Certificate program were offered. Feedback and contributions from our industry partners/groups and our students continues to define new opportunities and pathways for this program and many industry professionals were consulted and continue to contribute to the development for the courses.

An exciting new program has been developed this year -- The Ontario Equine Education and Employment program, in partnership with the Ontario Harness Horse Association (OHHA) and VPI, Inc. Funded by the Ontario government, this program helps to answer the need for staff, a growing problem in the Ontario industry. Six cohorts of up to 50 students are on offer and the first cohort commenced in November, 2021. Students receive training in job preparedness and job interview skills from VPI for 2 weeks. This is followed by 6 weeks of online learning from Equine Guelph for an introductory program that covers health, welfare and safety of horse and person, along with learning about the horse industry in Ontario. Then graduates enter a placement program, matching potential employers with new student. This is facilitated by OHHA, and utilizes Equine JobTrack for identifying possible employers. This is an exciting new opportunity for the horse industry in Ontario to attract new people to our industry who are interested in a career. Businesses and equine facilities are also finding staff through this mutually beneficial program. With ongoing support of government funding and the industry partners, this program has great potential for helping our industry and providing pathways to employment and careers.

The Horse Portal continues to grow due to the support from our partners and Council members and our sponsors. The Horse Portal has now reached its stride on the platform and can now offer specialized and customized training programs for the equine industry.

New courses under development include a course on transportation and equine welfare assessment training.

Horse Portal Partners currently include:

Provincial Horse Federations

- Alberta Equestrian Federation
- Equine Association of Yukon
- Horse Council of British Columbia
- Island Horse Council
- Manitoba Horse Council
- New Brunswick Equestrian Association

- Newfoundland and Labrador Equestrian Association
- Nova Scotia Equestrian Federation
- Ontario Equestrian
- Saskatchewan Horse Federation

Racing Organizations

- Ontario Racing
- Horse Racing Alberta

- PEI Harness Racing Association
- Central Ontario Standardbred Association
- Standardbred Canada
- Ontario Harness Horse Association

Animal Welfare Organizations

- Campbell Centre for the Study of Animal Welfare
- Ontario SPCA

Accreditation Partners

- Equestrian Canada
- the Canadian Therapeutic Riding Association

International Partners

- Saddle Up Safely (a program of the University of Kentucky Health Care, UK college of Agriculture and many community organizations)
- Equine Connection

Youth Partners

- 4-H Ontario

More information is provided in the Appendices.

Education Tuition Awards Continue

Important opportunities are provided to individuals in the racing industry through the ongoing Stuart Stocks Memorial award. Equine Guelph sincerely thanks the Stocks family for this moving award that is in memory of a passionate follower of the racing industry as it gives an important opportunity for a participant to further their career goals in the racing industry while achieving higher education and knowledge.

The Roger L'Heureux Memorial Award also commemorates a dedicated racing enthusiast and provides an opportunity for a Standardbred driver, trainer or groom or University of Guelph student to continue with their educational studies.

Katelynn Rourke is the recipient of the Roger L'Heureux Memorial Equine Award and Vanessa MacDonald has received the Stuart Stocks Memorial Equine Award.

Equine Guelph sincerely thanks the Stocks family and the L'Heureux family for their ongoing generosity providing these special educational awards and for their foresight in supporting the efforts of students for their career aspirations in the racing industry.

Large Animal Rescue Training Program

A growing interest in emergency preparedness and response of first responders for assisting and rescuing horses and other animals in emergency situations continues to fuel the need for specialised training offered by Equine Guelph. The following reviews the training that has been completed in 2021-2022.

Large Animal Rescue Training webinars

In partnership with Farm & Food Care Ontario, Equine Guelph provided two webinars to Provincial Animal Welfare Officers (SOLGEN) as part of their training (May 13 & 27, 2021).

Publications

Equine Guelph published an article "*Large Animal Rescue and Livestock Emergency Response Training – Best Practices*" in the Australian Journal of Emergency Management (AJEM) (July 2021).

Return to hands-on training: Equine Guelph ran two customized awareness level large animal rescue-training courses for the Toronto Mounted Police at the Horse Palace, CNE grounds (Nov 3 and 10, 2021) for 30 participants. The training was very well received.

Video: Sgt Kristopher McCarthy, Toronto Police Mounted Unit

<https://www.youtube.com/watch?v=VpEQBuJ9obM>



Equine Guelph ran a Large Animal Emergency Rescue Training workshop at the Ancaster Fairgrounds. Participants included members of Hamilton Mounted Police, Hamilton Fire Department and McKee-Pownall Equine Services (March 30, 2022).



Supporter relations

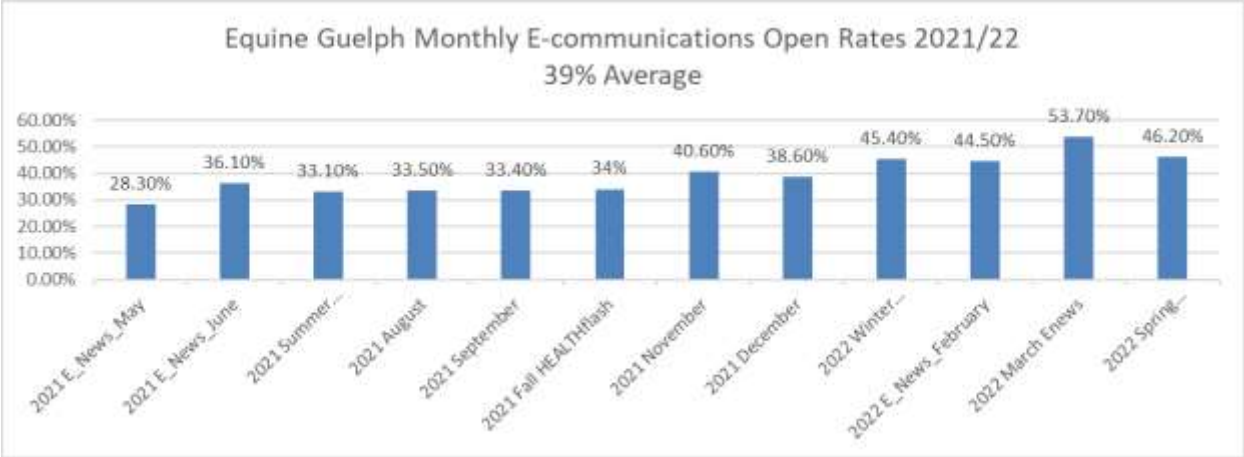
Equine Guelph's Large Animal Emergency Rescue Training Program was featured in a presentation during OVC's Equine Fireside Chat to supporters (April 27, 2022)

Expenditures for the education program were \$449,186. This was invested into new online program development, online education programs, and virtual presentations and webinars. Live training workshops were cancelled. The online education tuition returned \$177,902 a small decrease over last year (\$189,680), but still demonstrating continued interest in online education resulting in increased student enrollment.

More detailed information on the education program can be found in the appendices.

Communications and Marketing

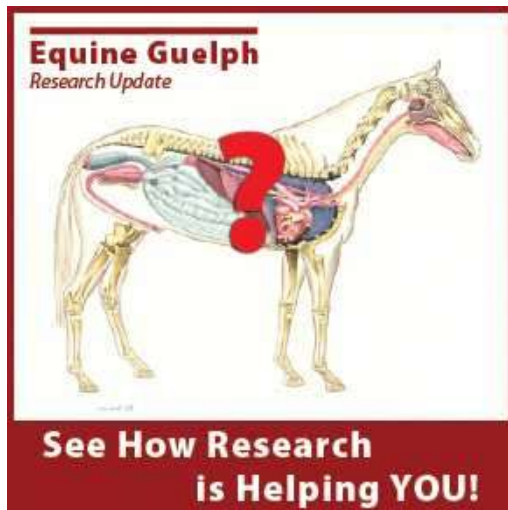
Significant growth continues with an increasing reach of our communications program to the industry. Equine Guelph has enjoyed an over 10% increase in the uptake of articles released compared to our 2020-2021 year. International and national pickup continues from major publications and websites. Equine Guelph continues to enjoy high open rates; 47% for our press releases and 39% for monthly E-news (shown in the following graph). The industry average open rate for an educational institute as of April 2022, according to Constant Contact has grown to 33% and Equine Guelph continues to surpass the averages.



The media continues to pay special attention to the resources and courses that The Horse Portal has to offer. With the support of Alcohol and Gaming Corporation of Ontario (AGCO) funding, Equine Guelph was able to once again offer free courses for the racing sector, including respiratory health, lameness/injury prevention, and gut health and colic prevention, for AGCO license holders and members of racing associations, continuing from a special pilot project launched in 2020. The communications on this program received excellent pickup in the racing media. Coverage of racing industry specific courses have been shared across many Standardbred, Thoroughbred, and Quarter Horse racing news sources and the racing media have responded with exceptional distribution of the Racing-Specific program.

Media has shown continued interest in Equine Guelph's Large Animal Emergency Rescue program (LAER) both in the web offerings which became popular during the pandemic and the re-introduction of hands-on offerings. LAER continues to provide valuable introductory training to fire fighters, first responders and the racing industry. (See Education section special report on Large Animal Rescue courses offered by Equine Guelph).

NEWSLETTER



The 19th edition of Equine Guelph's Research update was released in February 2022. It features research by Dr. Luis Arroyo, and his team, who are beginning a study which could make treating gastro-intestinal issues in horses using fecal microbiota transplantation a viable option.

Equine Guelph's newsletter has a major research focus along with providing updates on educational programs. The newsletter is partially supported by the industry investment into the research program as it extends distribution of research findings to the industry. A PDF copy is available on the Equine Guelph website. It is broadly advertised through the Equine Guelph E-news and press releases. Equine

Guelph has discontinued the print version of this newsletter in favor of the easily accessible, eco-friendly, cost-effective format available online.

The annual digital version of the Equine Guelph Research Update was well-received and covered several 2021 research related news releases complete with links to video interviews.

Interest in research articles via the monthly E-news and press releases remains consistent with at least 86 media posts resulting from Equine Guelph's monthly features and interest in archived articles and video interviews.

COVID-19 Special Response

Equine Guelph was keenly aware of the ongoing challenges persisting over the last year due to the pandemic in all sectors of the equine industry. In response to societal changes, Equine Guelph continued to develop additional offerings of short courses on TheHorsePortal.ca. Including the new Business 101 course run free of charge for a limited time. This course quickly accumulated over 1,000 registrations and added new subscribers to the Equine Guelph E-News list.

COVID-19 response resources were maintained during 2021-22 on TheHorsePortal.ca website and pertinent information to industry information continued to be posted.

With no trade shows for the EquiMania! Interactive youth education display to reach its audience, a special online offer for youth was supported by our sponsors. A free offering of TheHorsePortal.ca online course: Horse Behaviour and Safety for Youth ran from Nov 2021 to Jan 2022, to the delight of over 543 participants.

As mentioned earlier in this report, the new webinars for Equine Guelph's Large Animal Emergency Rescue program and the Journey through the Digestive Tract have been hugely popular.

Expenditures for the Communications and Marketing program were \$91,951, of which \$33,000 came from direct industry funding, from the Horse Improvement Program (HIP) / Horsemen's Benevolent and Protective Association of Ontario (HBPA).

Equine JobTrack

The newly designed Equine JobTrack has been picking up traction as the “go to” place for advertising open jobs in the industry. This continues to be a free service to the industry offered by Equine Guelph. Thanks to support from HBPA and new funding from Grand River and Ontario Racing, we can re-develop Equine JobTrack and launch the platform with new and enhanced features plus added security and continue to provide this as a free upgraded service to the industry. The Equine JobTrack website aims to provide enhanced services helping to connect jobseekers and employers in our industry. The re-launch in March 2021 certainly made a big splash in equine media and the site now has a large selection of job listings from both racing and non-racing facilities. Resources on career paths in the horse industry are also available on the site, including interviews with professionals from various equine sectors sharing their experiences. JobTrack is playing an important role as part of the Ontario Equine Education and Employment Program and new enhancements, such as the new Career Pathways are under development and will be launched soon.

Equine Guelph sincerely thanks HBPA, Ontario Racing, and Grand River Agricultural Society for their contributions that have enabled this valuable and free service to be upgraded and enhanced.

E-news & HEALTHflash

Equine Guelph's monthly, free distribution of e-news ensures our readers are up-to-date and informed on the latest developments for research and education/training opportunities. Media pick-up of Equine Guelph communications continues to indicate a strong interest in the articles and a value for re-distribution to their audience to keep them informed of new information, research findings and special events.

In partnership with our sponsors, *HEALTHflash*, consisting of 4 seasonal email reminders + monthly health alerts, was introduced in January 2013. This publication continues to be highly popular and links have been created from equine media across North America including: Equestrian Canada, Horse-Canada.com, HorseJournals.com, SystemEquine.com and The Rider, among a growing number of others.

Website

The overarching goal of the Equine Guelph and Horse Portal websites are to create a virtual portal for the equine industry to have a place for updated information on research,

events and educational opportunities. TheHorsePortal.ca page views have doubled in the last year! The combined total of page views for this fiscal year to our webpages is 704,589, which is a 68% increase over the last fiscal year!

Equine Guelph's website has reached over 34,117 new unique visitors with the most popular pages continuing to be Equine JobTrack, followed by the educational programs list. Traffic to both websites is arriving primarily through organic and direct search with Google as the number one source. The top landing page on TheHorsePortal.ca is the home page followed by course listings and the Covid updates and resources page.

41,500 YouTube videos have been viewed (Most popular: lameness lab #1, conditioning, foaling how to's, tale of teeth, infection control) Session times on our pages have all increased indicating great interest in our resources! Equine Guelph site 1:37 to 2:07 Portal 4:25 to 5:18 You Tube 2:29 to 2:51

Media, Seminars and Presentations, Association Targeted Communication

For a complete list of seminars and presentations given by Equine Guelph staff, please see Appendix 8. Regular communications are released to the equine media in formats that are easily included in their publications, whether in print or electronic form. Over 371 articles have been published about the programs of Equine Guelph in the industry media (see Appendix 12).

A broad range of coverage continues from a variety of industry publications, including both racing and non-racing interests. Equine Guelph staff regularly review and monitor industry magazines, newsletters and websites to follow and record the ongoing coverage.

In 2021-22, there has been extensive coverage from: HorseJournals.com, Standardbred Canada, COSA, and The Rider magazine.

Equine Guelph stories were also featured in the Canadian Horse Annual, Horse-Canada.com, CTVNews, Global News, CHCH news, RoyalFair.org, HBPA.com, Raceline, Quarter Racing Owners of Ontario Inc., CanadianThoroughbred.com, Trot Magazine, Horse Sport Magazine, SystemEquine.com, Grand River Agricultural Society, PaulickReport, WellingtonAdvertiser.com, Guelph Gazette, The Spectator, News.Ontario.ca, , Ponies 24-7 The Radio Magazine, Blaze Magazine, University of Guelph Newslinks, Campbell Centre for the Study of Animal Welfare, Alberta Standardbred Horse Association, Ontario Farmer, Ontario Association of Veterinary Technicians, the Ontario Veterinary College bulletin, and the majority of Canada's provincial equine associations.

In addition, Equine Guelph received coverage from international horse industry websites such as; HarnessLink.com, HorseTalk.co.nz, EquiMed.com, EquineChronicle.com, EquusMagazine.com, Equine Science Update, AmericanFarriers.com, HolisticHorse.com, TheHorse.com, StableManagement.com, American Riding Instructors Association, Cayuse Communications, BestHorsePracticesSummit.org,

EquineInfoExchange.com, QuarterHorseNews.com, NickerNews.net, HorseNation.com, The Northwest Horse Source (Colorado USA), Australian Journal of Emergency Management, Saddle Up Magazine, EverythingHorseUKco.uk and HorseIllustrated.com.

New international distributors this past fiscal year include SpeedHorse.com and Knowledge.Aidr.org.au.



Infectious Disease Expert, Scott Weese at the University of Guelph, continues to be very busy in the media responding to questions about the potential spread of Covid-19 between animals and humans and how veterinary practices are operating during the pandemic. The 'Worms & Germs Blog' has provided multiple posts since mid-March 2020'. Weese, was recognized for his work supporting Ontario veterinarians during the COVID-19 pandemic with the 2021 Award of Merit from the Ontario Veterinary Medical Association (OVMA) and most recently a new award from the Veterinary Information Network (VIN), an online community for veterinarians. Dr. Scott Weese, received the inaugural VIN Veritas Award for consistently sharing accurate, empathetic and timely information on the COVID-19 pandemic. The award, to be presented annually by VIN, recognizes those individuals whose actions display courage and integrity in service of science and truth.

Links to Equine Guelph resources continue to be created from sites including: Equestrian Canada, Provincial Equestrian Federation websites, veterinarian web sites, and blogs from social media sites (i.e. Facebook, Twitter, LinkedIn and Instagram). Information and

service sites are also actively posting links to Equine Guelph resources e.g.: Capri CMW Insurance Services Ltd. and SystemEquine.com directing the public to Equine Guelph's online courses, horse owner tools and research.

Archived research videos are being accessed and have been recirculated by media such as HorseJournals.com, who have featured Research Radio videos regularly in their 2021/22 eblasts and embedded them on their webpage.

Ontario Equestrian (OE) continues their strong and on-going support of Equine Guelph communicating EG news through their social media channels. This provides important assistance in alerting their members to new educational opportunities, thus helping to boost student enrollment and increase tuition revenue. Important partnerships have been developed with OE including the program to contribute to research support.

Several other sponsors and provincial equine organizations have been posting buttons on their sites to help promote the communications, research and education/training initiatives including the tuition awards for racing, The Horse Portal course offerings, racing industry specific course offerings and 12 –week course offerings and more.

The Horse Portal has linked 10 provincial equestrian federations nation-wide, as well as the OSPCA, Campbell Centre for the Study of Animal Welfare, Ontario Racing, Horse Racing Alberta, Standardbred Canada, 4-H Ontario, Canadian Therapeutic Riding Association, Equestrian Connection and Saddle Up Safely, each with their own unique landing page generating traffic to the new short courses offered by Equine Guelph.

Information Inquiries

Information requests were reduced this year in comparison to previous years likely due to the pandemic, but there were still numerous e-mail contacts with varying questions on a wide variety of concerns and topics. Inquiries about employment opportunities continue and we direct people to the Equine JobTrack site.

Providing an information portal for the industry as well as Equine JobTrack is important to the industry for ongoing industry development and sustainability. Equine Guelph was developed by the industry for the industry to play the role of “portal” between the industry and the knowledge developers in the equine research and extension programs at the University of Guelph, and this program remains without a funding basis by the industry or government.

Popular topics include information requests on euthanasia and equine veterinarian shortages as well as large animal emergency rescue courses, biosecurity for horse owners and current outbreaks, special nutritional management, identifying sources of information on new and emerging diseases, concerns about real or perceived welfare issues such as investigations for welfare issues, transportation issues, environmental management and general nutrition questions.

Development

A. Equine Guelph 'Helping Horses for Life' Development Campaign:

The following information reflects fundraising initiatives and private donations as well as corporate sponsorship sales over the past fiscal year:

	FY20-21 Amount Raised	FY21-22 Amount Raised	FY21-22 No. of Unique Donors	FY21-22 Median Gift
Area of Greatest Need	\$20,211.20	\$26,718.80	64	\$30
Education	\$25	\$7,758.50	2	\$3,879.25
Research	\$2,369	\$2,785.00	20	\$100
OE Welfare Education Fund	\$690	\$240	2	\$10
Sponsorship	\$81,800	\$78,800*	9	\$7,500
Kerr Fund for Equine Education and Community Outreach**	\$0	\$0	n/a	n/a
Equine JobTrack, Large Animal Emergency Training and Youth Programming***	n/a	\$50,000	1	\$50,000
Equine Guelph – Stuart Stocks Memorial Award	\$0	\$1,000	1	\$1,000
TOTAL	\$105,095.20	\$167,300.30	96	\$30

TABLE I - Funds raised from private donations and sponsorship to EG accounts during FY20-21 and FY21-22 including number of unique donors and the median size of gift for each account.

- * Does not include one sponsor's commitment of \$12,500 (Workplace Safety & Prevention Services) whose payment was not received in FY 21-22.
- ** A generous EG supporter donated \$100,000 in FY2019-20, which in turn, was invested. The purpose of the Fund is to support ongoing base operational funding for EG horse education, communication and community outreach initiatives. The expendable portion of the Fund is dependent on interest rates.
- *** The Grand River Agricultural Society made a three-year commitment of \$150,000 in support of the following EG initiatives: Equine JobTrack, Large Animal Emergency Training and Youth Programming. The donation for the first year, FY2021-22, was \$50,000.

1. **Annual Spring Appeal:** The 2020-21 spring appeal was mailed in June 2021. Its focus was on education (student testimonials) and research; it included a letter, donation card and return envelope. The following stats measure the gifts that came from people who received the EG appeal and responded directly to the letter.

	FY20-21	FY21-22
Recipients	454	372
Total cash-in	\$6,120	\$5,695
Total donors	39	31
Average gift	\$156	\$183
Participation	8.6%	8.3%

TABLE II – Comparison of select metrics for the past two appeals.

The EG mailing focused on donors/past donor group. This audience has two segments:

- Recent Equine Guelph donors - 108
- Lapsed Equine Guelph donors - 264

The most popular accounts supported were Equine Guelph - Area of Greatest Need and OVC Horse Health Fund (Healthcare)

2. Ontario Equestrian Annual Membership Mailing Fundraising Program: Each year Ontario Equestrian (OE), through its annual membership renewal form, gives its members an opportunity to donate to a cause (Equine Guelph is one option on a list of choices). A payment of \$7,508.50 was received in FY2021-22 for calendar years 2019 and 2020. OE raised \$3,922 for EG Education programs in the calendar year 2021 (note: payment received shortly after FY2021-22).

B. Corporate Sponsorship Program: The FY2021-22 sponsorship program made gains from the year before, adding two new sponsors* and upselling existing sponsors committing with new initiatives**. Total revenue from the corporate sponsorship program was **\$78,800** (Note: Total is down slightly from the previous year due to a payment being received from one sponsor after the fiscal year*** – \$91,300 committed):

Online Tools & Other Education Programs – \$58,800

1. BOEHRINGER INGELHEIM – EG E-Newsletter, portal short course**, healthcare tool ▪ \$13,500
2. CAPRI CMW INSURANCE SERVICES LTD – 2 portal short courses**, healthcare tool, portal PTSO pages, Hoofprints tribute program ▪ \$15,000
3. *CENTRAL ONTARIO STANDARDBRED ASSOCIATION – free portal course for racing ▪ \$5,000
4. MERCK ANIMAL HEALTH (10 year sponsor anniversary) – EG HEALTH*flash*, portal short course, healthcare tool**, video** ▪ \$14,000
5. *ONTARIO RACING MANAGEMENT – free portal course for racing ▪ \$9,000
6. STANDARDBRED CANADA – free portal course for racing ▪ \$2,300

EquiMania! (Initiatives were online due to COVID) – \$20,000

1. KUBOTA – youth safety course ▪ \$5,000
2. SSG GLOVES – youth safety course ▪ \$15,000
3. WORKPLACE SAFETY & PREVENTION SERVICES – youth safety course + fire prevention partner ▪ \$12,500 (**amount received shortly after FY2021-22, so not included in final total)

C. Equine Guelph Grant: Canadian Agricultural Partnership (CAP) Program (Labour and Supply Challenges Fund) – \$39,913

Equine Industry Recovery Project: JobTrack Redevelopment & Facility Management Training Program – EG received funding for two projects:

1. re-development of Equine JobTrack – a free service linking employers and job seekers in the equine industry
2. development of the Equine Facility Management Certificate program, featuring a new *Equine Business 101* course

D. Equine Guelph App: The *Horse Health Tracker App* was originally developed as a tool to help horse caregivers to be active participants in their horse's healthcare – and was available through Google Play and Apple iTunes. Given the ongoing technical issues and costs associated with the upkeep of app's, EG made the decision to no longer make the app available to new users. However, past users were still able to upgrade it and the total revenue generated in FY2021-22 was **\$237.18**.



Equine Guelph retails laminated barn posters at major events such as Can-Am (N/A this past year due to COVID) and are also made available through mail-order. Total poster revenue was **\$309.69**.



Financial Report

The Year End Financial Report is included in the Appendices. Quarterly reports are produced for the Equine Guelph Advisory Council. Financial reports include forecasting of revenue and expenditure for each of the program areas and year-to-date statements.

Equine Guelph revenue totaled \$743,367 (compared to \$687,285 for previous year) for the fiscal year with funding provided by our funding partners, donations, and online course tuition. Program expenditures totaled \$654,958 (\$911,691 last fiscal year).

The research program allocated \$256,947 for research projects, \$113,376 of which was distributed to researchers this fiscal year (the remaining funds will be distributed once researchers complete their Animal Use Protocols (AUP's) in the new fiscal year. Expenditures for the education program were \$449,186 which included program development, online education programs. Expenditures for the Communications and Marketing program were \$91,951. Online education tuition returned a total of \$177,902, a small decrease from last year (\$189,680), but continuing a trend of overall revenue increase from two fiscal years prior (\$112,464).

While there are still challenges for ongoing stability in funding for the racing industry, due to the shutdowns, this has continued to have an impact on funding for Equine Guelph, although there was a small increase. Industry funding was \$38,000, an increase of \$3,000 from the previous year. This funding is used for the support of administration of the research funded program and direct-to-industry communications on the research program.

The majority of funding for the education/communications program continues to come from tuition, sponsorships and successful grant proposals. Research funding continues to be a source of significant concern going forward without specific designated funding identified and protected. While funding has increased since the previous year, the goal of stable consistent funding for the programs of Equine Guelph, as a Centre at the University for the horse industry will continue to be an issue of high priority as the industry continues with its efforts to develop a re-organized model that provides it with a sustainable business model. Research and education/training of the members of the racing and non-racing community will continue to be an important part of future success.

Highlights and Special Events

May 2021 – April 2022

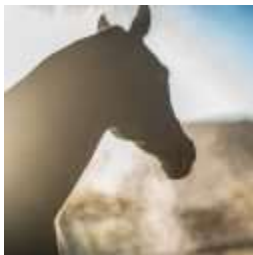
Welcome to our highlight reel. If you would like to know more about any of the following press releases, click on the titles to follow the web link to the full story.



MAY13

FREE Equine Business 101 Course for a Limited Time!

New Equine Facility Management Certificate offered by Equine Guelph
Nothing compares to being greeted with nickers every morning, watching the herd peacefully graze, and sharing the strong horse/human bond with your customers. Equine industry pros are a passionate and hard-working bunch, who consider themselves lucky to earn a living doing what they love...



MAY31

Equine Asthma & Pollution

During the summer there are often waves of horses presenting with respiratory disease. Ontario Veterinary College researcher, Janet Beeler-Marfisi never really ascribed that to being part of air pollution, until her recent research revealed horses, with their far greater lung capacity and athleticism, can also suffer when air pollution levels rise. Checking the Air Quality...



JUN10

Free Equine Webinar Series: Taking Science to the Stable

Starts June 16 with Broodmare Management and Nutrition with Don Kapper
Equine Guelph is pleased to announce that our partnership program, Taking Science to the Stable, FREE summer webinar series begins June 16 and will run every two weeks until August 18. Hosted by Open Learning and Educational Support at the University of Guelph, this...



JUN17

Equine Robo-Gut Helps OVC Researchers Study Gastrointestinal Diseases in Horses

Originally published by Ontario Veterinary College – June 14, 2021
University of Guelph researcher is advancing knowledge into prevention and early detection of gastrointestinal diseases in horses using a mechanical replica of a horse's GI system to mimic equine digestion and disease. Dr. Arroyo



JUN30

What to do About Ticks

Both people and their animals have been encountering more ticks and there is a real concern when it comes to the possibilities of contracting Lyme disease. Dr. Luis Arroyo, researcher at the Ontario Veterinary College was involved in a study on the growing numbers of ticks in southeastern Canada and the risk factors to horses. ...



JUL5

Horses 101 E-Book from Equine Guelph

Equine Guelph just released a 50-page downloadable E-book comprised of their most popular information sheets, plus some new handy checklists for horse owners. It is FREE for all Equine Guelph E-news subscribers! "From the Horse Health Check to useful checklists, it is sure to be a practical resource for horse-owners and caretakers," says Equine Guelph...



JUL20

Equine Guelph Partners with Best Horse Practices for Fourth Annual Summit

Equine Guelph has announced its support of the fourth annual Best Horse Practices Summit (BHP) taking place at Spy Coast Farm, Lexington, KY, on October 29-31, 2021. While we will not be among the lucky 200 registrants at this live event, we are happy to be sponsoring one of the presenters, accomplished author, clinician and...



JUL26

Emily Esterson Joins OpenEd as Instructor for Redeveloped Equine Journalism Course

Story by: Cameron Grant Bring your passion for writing to the equine industry this fall with the newly redeveloped online Equine Journalism course, taught by experienced journalist Emily Esterson. The 12-week University of Guelph course has been redesigned to provide students with the tools, techniques, and knowledge needed to develop compelling content, and will include...



JUL29

Don't Let Dust Diminish Your Horse

Avoid asthma and respiratory issues with barn management. Have you ever walked in a barn, and felt like your lungs were being assaulted? Imagine how a horse feels, particularly if they spend hours in a stall. When horses exercise, they take on upwards of 16 times as much air per second than their human owners. ...



AUG3

New Equine Business 101 Course a Hit!

Over 900 students (and counting) are raising their business acumen to start their professional careers in the horse industry or raise their current operations to the next level. On June 21, Equine Guelph launched a new on-demand, online course, Equine Business 101, which will be offered for FREE until Sept 20, 2021. The discussion groups...



AUG5

Are most horses lefties?

The perils of putting symmetrical saddles on asymmetrical horses “We were not surprised to learn 60% of the horses in our 490 horse retrospective study had larger measurements on the left side of their withers,” says Dr. Katrina Merkies, researcher and associate professor at the University of Guelph. Undergraduate students, Julia Alebrand, Bethany Harwood, Katharine...



AUG9

TLC for our Senior Horses!

Check-ups and check-ins still required for equine health and welfare Trusty steed Sparky is ready to “retire”, but what exactly does that mean? Certainly, there are management changes when it comes to the senior horse. While there may be savings in some areas, there are still serious commitments of both time and finances to make...



SEP16

Over 1,000 Registered in New Equine Business 101 online course

Coming from near and far, those interested in professional equine pursuits have posted glowing reviews for Equine Guelph’s new online short course, Equine Business 101, hosted on TheHorsePortal.ca. Launched June 21, 2021, the online learning community has quickly grown to over 1,000 enrolled in this on-demand course that serves as an introduction to the newly...



OCT25

Apply Now For 2021 Ontario Racing Industry Scholarships

Two passionate racehorse caretakers in Ontario will once again have the chance to further their skills with Equine Guelph’s tuition awards program. It has been running since 2016, thanks to the generosity of both the L’Heureux and Stocks families who set up memorial awards for future ambassadors of Ontario’s racing industry. The deadline to apply...



OCT27

Free Online Youth Course on Horse Behaviour and Safety Returns!

Equine Guelph, the horse centre at the University of Guelph in Canada, has announced it is once again opening the doors to a free virtual classroom for youth around the world. Horse-crazy teenagers (ages 13-17) will have the opportunity to take an online Horse Behaviour & Safety course with on-demand access from November 1, 2021 until January 31, 2022. Last...



NOV2

Taking the Reins! Exciting Equine Opportunities. The University of Guelph's Equine Industry Symposium Set to Return November 22-24, 2021

Now more than ever the equine community is bursting with new opportunities. Join the University of Guelph, in partnership with Equine Guelph, Ontario Equestrian, and Equestrian Canada as these opportunities are discussed during the 6th annual Equine Industry Symposium.



NOV9

Horseracing Partners in Ontario Announce Free Respiratory & Lameness Courses

Ontario Racing (OR), the Central Ontario Standardbred Association (COSA) and Equine Guelph are partnering to offer two free online courses to the racing industry in Ontario this winter. Addressing the top two industry-identified health priorities, OR is funding the student tuitions of the Racehorse Respiratory Health course and COSA is sponsoring Injury/Lameness...



NOV17

Equine Guelph Large Animal Emergency Rescue Programs Resume with Hands-On Workshops for Toronto Mounted Police

Equine Guelph's Large Animal Rescue educational tools emerged out storage for the first time since the pandemic started. A total of 30 Toronto Mounted Police officers were the keen participants in workshops taking place on November 3rd and 10th 2021 at the CNE grounds.



NOV25

EHV-1 Research Study and Infection Control Tips

"Most horses have been exposed to the equine herpes virus," says Dr. Diego Gomez-Nieto, researcher at the Ontario Veterinary College. Gomez has been part of a research study on the Equine Herpes Virus which discovered ...

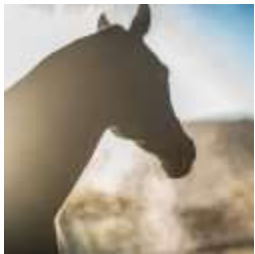
DEC15



Equine Supplement Research Explores Potential Gastric Health Benefits

Collaborating on three recent research papers on a nutraceutical called 'Gs Formula', Dr. Wendy Pearson, PhD Associate Professor, at the University of Guelph has been very busy. Approached by GS Organic solutions out in BC, Pearson has been investigating the potential for Gs Formula to improve gastric health, particularly for horses with a history of...

DEC15



Free Courses for Ontario Racing Industry – Instructors Announced!

Dr. Sarah Shaw and Dr. Amy Lack have been announced as course co-instructors for the Racehorse Respiratory Health online course. Funded by Ontario Racing and offered by Equine Guelph, the two-week short course runs from Jan. 24 – Feb. 4, 2022 and will be FREE (value of \$95) to the first 100 AGCO licence holders who enroll...

JAN4



Equine Guelph Announces Industry Ambassadors for Free Online Racing-Exclusive Training Program

Equine Guelph has announced that Ruleen Lilley and Renée Kierans have been selected to represent the horse racing industry as Industry Ambassadors of an online training initiative this winter – a series of free short courses offered exclusively to the racing community in Ontario (AGCO licensees). Trainers, grooms and owners will reap the benefits of...

JAN6



Last Call for FREE Online Youth Offering of Horse Behaviour and Safety

Tell all your barn buddies there is one month left to join the global community of horse-crazy teens that are pursuing their passion for horses online! Over 1,000 youth around the world have logged on to take advantage of the FREE Horse Behaviour and Safety course offered until Jan 31, 2022 on TheHorsePortal.ca Equine Guelph,



JAN13

2021 Racing Industry Scholarship Winners Announced

Equine Guelph has announced the recipients of its 2021 tuition awards. Katelynn Rourke is the recipient of the Roger L'Heureux Memorial Equine Award and Vanessa MacDonald has received the Stuart Stocks Memorial Equine Award. Selected for their love of horses, commitment to their welfare and desire to learn, both winners will receive two online courses through...



JAN27

Racehorse Injury/Lameness Prevention & Care Course Instructor Announced!

Dr. Melissa McKee of McKee-Pownall Equine has been announced as the course instructor for the Racehorse Injury/Lameness Prevention & Care course. Funded by the Central Ontario Standardbred Association (COSA) and offered by Equine Guelph, the two-week online short course runs from Feb. 21 – Mar. 4, 2022 and will be FREE (value of \$95) to...



JAN27

Follow Your Heart: Careers in the Horse Industry

Story: Kim Izzo | First posted January 26, 2022 by Horse-Canada.com There are countless young women and men who would embrace a career in the horse industry. But some either do not come from a horse background or didn't grow up on a farm in a rural area and working with equines may seem like...



JAN27

New Equine Fecal Transplant Research

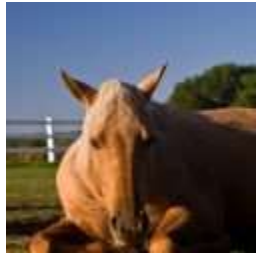
By Jackie Bellamy-Zions for the Equine Guelph Annual Research Update – Volume 19 Fecal transplantation has been very successful in treating humans with issues such as C-difficile infection, which is also a leading cause of diarrhea in horses. Ontario Veterinary College researcher, Dr. Luis Arroyo and his team are about to begin a study which...



JAN31

Grand River Agricultural Society Supports Equine Guelph Programs with Generous Gift

A gift of \$150,000 over three years from the Grand River Agricultural Society (GRAS) to Equine Guelph will initiate the partnership of a multi-year initiative to continue building and developing programs of value to the horse industry. The generous donation from the Grand River Agricultural Society will support important Equine Guelph programs in job training...



JAN31

Equine Guelph declares February Colic Prevention Education Month

Equine Guelph has announced that the month of February, Canada's coldest month, will be Colic Prevention Education Month. The next four weeks will be dedicated to increasing awareness of ways for caregivers to decrease the risk of colic in their horses. Although horses can be afflicted with gut pain in any season, the cold weather...



FEB22

Introduction to Forage Latest Addition to Online Courses for Horse People

With forage recommended as approximately 80% of your equine's diet, a caretaker with straight A's in selection and management of hay and pasture is a horse's best friend. Join expert in the field, Dr. Paul Sharpe, for the inaugural offering of the Introduction to Forage online course this Mar 21 – Apr 1, 2022.



MAR1

Encapsulating Stem Cells for Treating Equines with Osteoarthritis

The next exciting step in regenerative therapies has Dr. Thomas Koch, Ontario Veterinary College, and his team encapsulating stem cells to see if they can enhance the effect of treatment. Horses with osteoarthritis in their joints stand to benefit from a therapy with a slower release time. "When you encapsulate the cells within hydrogel, you..."



MAR2

Ag Safety Week – A Reminder of Everyday Safety on Horse Farms

March 13 – 19, 2022 is Canadian Agricultural Safety Week (CASW) – an annual campaign held the third week of March of each year. In 2022, the aim of the campaign is to inspire farmers, farm families, and farming communities to value #FarmSafetyEveryday. This especially holds true for the horse community, with high hospitalization rates as...



MAR28

New Sport Horse Injury/Lameness Prevention & Care Online Course

Dr. Brianne Henderson of Rivendell Equine Veterinary Services has been announced as the course instructor for the new Sport Horse Injury/Lameness Prevention & Care course. Offered by Equine Guelph, and kindly sponsored by CapriCMW Insurance Services, this new two-week online short course runs from April 25 – May 6, 2022. Participants will learn daily practices that...



APR4

Research on Equine Pregnancy

The value of long-term studies is well understood by researcher, Dr. Keith Betteridge who has been involved with Ontario Veterinary College equine reproduction studies since 1986. Since graduating as a veterinarian from Bristol University, England, in 1959, Betteridge has seen reproduction technology evolve with the introduction of ultrasound in the 1980s and, most recently, RNA...



APR5

April dubbed Vaccination Education Month by Equine Guelph

Just one horse with an infectious disease diagnosis can close a stable or event facility. Vaccination is the best way to lower risk of loss of use, high treatment costs and unnecessary suffering for the horse. Tailoring your annual immunization plan to each equid in your care is the best way to practise prevention from...



APR14

New Sport Horse Injury/Lameness Prevention & Care Online Course Guest Expert Announced

Equine Guelph, the horse centre at the University of Guelph in Ontario, Canada, has announced that Dr. Brianne Henderson of Rivendell Equine Veterinary Services will act as course instructor for the new Sport Horse Injury/Lameness Prevention & Care course. She will be joined by renowned professor and farrier, Travis Burns of Virginia, U.S.A., in the role...



APR19

Hamilton Hosts Large Animal Emergency Rescue Training

Hamilton Mounted Police understand the value of preparedness and were happy to host another Large Animal Emergency Rescue Training workshop by Equine Guelph on March 30, 2022 at the Ancaster Fairgrounds. Participants from Hamilton Mounted Police, Hamilton Fire Department and McKee-Pownall Equine Services were hands on, working together on the rescue scenarios...



APR21

Equine Student Creates Positive “Ripples”

Originally Posted on Tuesday March 22, 2022. One of the main goals of the University of Guelph’s Equine Studies Online program is for students to take what they’ve learned and apply it in the real world to create sustainable change. For current equine student Holly Gillman, this goal has already been achieved through her ongoing work with...



APR27

Research into Development of the Foal’s Gut Could Advance Treatment of Critical Cases of Diarrhea

The foal’s gut undergoes many changes as it develops rapidly. More and more, we are learning how the colonization of a gut correlates to good health. Exploring the differences in foal microbiomes and how those differences may tie in with overall health has PhD Candidate, Jennifer MacNicol very excited about the potential advancements the research...

Summary of Highlights

Equine Guelph is now celebrating 19 years as the Centre for the horse owner at the University of Guelph. We continue to work with our partners to develop and improve our programs based on feedback and industry priorities. The research program, funded by the industry provides important new information that is fed into the communications program for building awareness in the industry and forms an important part of the development and ongoing updating of the education programs. All levels of our industry benefit from these programs in many ways – from equine veterinarians, industry professionals, hobbyists, youth and families and many more. Exciting growth has taken place in the development of research programs, participation in courses and media coverage and outreach. The extensive coverage of Equine Guelph programs is an indication of the value of those programs to our industry.

Equine Guelph is once again leading the way in equine education with the expansion and updating of the online programming, allowing more industry participants to learn from home on their own time. This important step forward is achieved through our new and enhanced partnerships with equine associations, organizations and individuals of the Ontario industry and those beyond the provincial borders to help the Equine Guelph programs of research and education on industry-identified priorities. The need to attract competent and knowledgeable staff and newcomers to our industry is a significant priority and Equine Guelph will continue to work with our industry to provide programming and services to support that initiative. The new Ontario Equine Education and Employment Program, along with Equine JobTrack are two major initiatives to support that and require on-going industry support.

Updating the knowledge of industry participants also remains a priority in support of horse health, welfare and safety. The research program continues to be an important feature of this, not only for the industry but also for knowledge generation and training of veterinary specialists and future veterinarians for our industry. Working together, we can continue to make significant

achievements for development of knowledge, increasing awareness of best practises and to encourage “always the student” for participants in our industry as there is always new information to be learned and applied. Once again, it has been a year of increased recognition, development and enhancement of education and training programs and significant strides in research and our programs are a fundamental part of our rapidly changing equine industry as the need for research, education and welfare continues to be greater every day. The core values of supporting health,welfare and safety of the horses and the industry remain a strong and unwavering focus of the programs of Equine Guelph.

Equine Guelph acknowledges and sincerely thanks the members of the Advisory Council and funding/supporting partners: Quarter Racing Owners of Ontario, Inc., Equestrian Canada, the Horsemen’s Benevolent and Protective Association of Ontario, the E.P. Taylor Equine Research Fund, Standardbred Canada, Ontario Equestrian, Central Ontario Standardbred Association, Standardbred Owners Association of Ontario, Canadian Thoroughbred Horse Society, the Ontario Ministry of Agriculture, Food and Rural Affairs, the Ontario Harness Horse Association, the Alcohol and Gaming Commission of Ontario, Ontario Racing, the Ontario Veterinary College, and the University of Guelph.

Appendices

Appendix 1: Current Equine Guelph Advisory Council

Al Patterson, Co-Chair
Industry Member at Large
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qtfarm@allstream.net

Gayle Ecker, Co-Chair, Ex-officio
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Nakonechny
Equestrian Canada
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Tel: 1-866-282-8395

Jean Szkotnicki &
Tracey McCague-McElrea
Ontario Equestrian
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Richmond Hill, Ontario L4B 3K3
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Bob Broadstock
Quarter Racing Owners of Ontario, Inc.
Industry Development Program
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Ajax, ON L1S 2B9
Tel: (905) 426-7050
Fax: (905) 426-7093

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Appendix 4: Research Projects for 2021-2022

New Projects in 2021-22:

Investigator	Title
Arroyo, L.	Improving fecal transplantation in horses: determining optimal conditions for preparation and storage
Arroyo, L.	The longitudinal development of the fecal microbiome and metabolome in neonatal foals
Arroyo, L.	Comparative Anatomy: Equine Pulmonary Arterial Structure and Function
Gomez, D.	Enteroinstular axis in healthy horses and horses with gastrointestinal diseases during hospitalization
Koch, T.	Mesenchymal stromal cells for the treatment of equine tendonitis
Koenig, J.	Mesenchymal stromal cells for the treatment of equine osteoarthritis
Valverde, A.	Comparison of two intraoperative lidocaine constant rate infusions on cardiorespiratory function and quality of recovery in healthy isoflurane-anesthetized horses undergoing elective surgery
Zur Linden, A.	Equine Pulmonary Biopsy: Improving Safety and Efficacy

Continuing Projects:

Investigator	Title
Arroyo, L.	Hyper immune plasma transfusion for the prevention of R. equi infections in foals
Arroyo, L.	The association of Equine Parvovirus-Hepatitis (EqPV-H) with Theiler's disease and the prevalence of EqPV-H DNA and antibodies in horses in Ontario
Arroyo, L.	Dynamics of vitamin D metabolites in healthy and hospitalized horses with enterocolitis
Beeler-Marfisi, J.	The relationship between EIPH and exposure to ambient air pollution in Thoroughbred and Standardbred racehorses
Chenier, T.	Do mast cells play a role in persistent breeding-induced endometritis in the mare?
Hurtig, M.	The Safety and Efficacy of Intra-Articular Therapies
Koch, T.	Enhancement of Immune-Modulatory Properties of eCB-MSCs
Koch, T.	Vitrified equine MSC cartilage for cartilage repair
Koenig, J.	Effect of Extracorporeal Shock Wave Therapy on Intracellular Stress and Immunomodulatory Function of Equine Umbilical Cord Blood Mesenchymal Stromal Cell in vitro

Continuing Projects:

Investigator	Title
Arroyo, L.	Improving Fecal Microbiota Transplantation in Horses
Arroyo, L.	Culture-Based Molecular Profiling of the Colonic Bacteria of Horses with Typhlocolitis
Arroyo, L.	Improving Fecal Microbiota Transplantation in Horses
Arroyo, L.	Effects of exercise and Lasix on the pulmonary artery hemodynamics of EIPH affected horses
Barta, J. and Zeldenrust, E.	Detecting <i>Klossiella equi</i> , a potential cause of renal disease, in Ontario horses
Beeler-Marfisi, J.	Pathogenesis and characterization of inflammatory airway disease in Ontario Thoroughbred and Standardbred racehorses
Bienzle, D.	Ciliary function in horses with inflammatory lung disease
Cribb, N.	Ultrasound examination for assessment of closure of the nephrosplenic space in horses
Koch, T.	Isolation and Culture of Equine Mesenchymal Stromal Cells in Serum-Free Conditions
Koch, T.	Equine Mesenchymal Stromal Cells Ability to Help Fight Bacterial Infections
Koch, T.	Development of Osteochondral Constructs Using Equine MSCs
Koch, T.	Allogeneic Equine Umbilical Cord Blood Mesenchymal Stem Cells for Treatment of EIPH
Koch, T.	MicroRNAs as Equine Joint Health Biomarkers
Koenig, J.	Evaluation of the repeated use of allogeneic umbilical cord blood mesenchymal cells in clinical cases of equine superficial digital flexor tendinitis
Koenig, J.	Effect of extracorporeal shockwave therapy on umbilical cord blood mesenchymal stromal cells
Weese, S.	Characterization of the epidemiology and clinical impact of <i>Clostridium difficile</i> infection in hospitalized foals
zur Linden, A.	Development of 3D printed models of the sacroiliac, hip and cervical articular facet joints for ultrasound guided joint injections training of equine practitioners

Appendix 5: Lay Summaries of Research Projects for 2021-2022

New Projects:

Arroyo, L. - Improving fecal transplantation in horses: determining optimal conditions for preparation and storage

The development of new DNA sequencing technologies has revealed that the interaction between intestinal bacteria and the host is extremely important to health maintenance. In fact, an altered composition of the intestinal bacteria (called dysbiosis) is present in horses with intestinal diseases such as colitis and colic and during treatment with antimicrobial drugs. The correction of dysbiosis to decrease inflammation and to resolve diarrhea faster. Different methods can be attempted to resolve dysbiosis including probiotics, supplements, or fecal microbiota transplantation (FMT), which is the transferring of all microorganisms and metabolites present in the feces of a healthy donor to a sick patient. FMT has been used with great success in humans and dogs, resolving over 95% of cases of diarrhea in people with *Clostridioides difficile* infection, which is also a leading cause of diarrhea in horses. FMT has been given to horses with diarrhea, but so far, scientific evidences indicates that FMT is not so efficient in horses. Our preliminary data show that the current recommendations of FMT to correct dysbiosis in horses has no evident impact on the microbiota of horses. This might be related to the fact that FMT cannot be given by enema, as in other species, because of the horse's anatomy and the administration via nasogastric tube drastically decreases the viability of the transferred bacteria. Furthermore, it has been shown that over 80% of the bacteria present in feces die during FMT preparation because of exposure to Oxygen and freezing. Therefore, increasing bacterial viability in the transplanted solution is fundamental to improve FMT efficacy in horses. The objectives of this study are to optimize bacterial viability of FMT using anaerobic conditions and to identify microbiota patterns associated with higher resistance to storage.

Arroyo, L. - The longitudinal development of the fecal microbiome and metabolome in neonatal foals

Neonatal diarrhea is a common occurrence in foals that can develop into a life-threatening condition. However, at present the etiology is poorly understood and it is unclear why diarrhea progresses in some foals whereas others recover without additional symptoms. The microbial environment within the neonatal gut rapidly becomes colonized following birth. However, several factors influence the particular microbes that are present such as location, maternal diet, and even breed, making comparisons between individuals challenging. Therefore, the metabolic activity of gut microbes may provide a more analogous comparison and improve our understanding of bacterial function at this critical stage of gastrointestinal development. Integrating both microbial and metabolic data will enable a comprehensive understanding of how the gut environment matures in horses and what key aspects denote health. This research will also begin to reveal potential deviations from health that occur during critical bouts of diarrhea in foals. Understanding the gut microbial development in foals will advance the field of equine neonatal care and move it towards personalized treatments and therapeutics.

Arroyo, L. - Comparative Anatomy: Equine Pulmonary Arterial Structure and Function

During their career, more than 80% of racehorses can be expected to develop Exercise-Induced Pulmonary Haemorrhage (EIPH). This disease, which occurs mainly in the most upper and rearward region of the lungs, is characterized by blood leaving the microvasculature of the lungs and entering the airways. The management and treatment of EIPH has a substantial economic impact to the equine industry, with the cost of treating EIPH estimated to exceed \$100 million annually in the United States alone. The cause of EIPH has not been determined, consequently current treatment and mitigation measures are empiric and speculative. There is intense interest

in understanding the relationship between the anatomy and mechanical properties of the large arteries and the manifestation of microvascular diseases in humans. Arterial anatomy and elasticity determine the nature of the pulse wave which transmits pulsatile energy to the microvasculature. Pulse wave energy transmission is viewed as a fundamental aspect underlying the development of microvascular diseases. Studying the pulse wave in horse lungs is an important step in understanding what causes EIPH and will improve the potential to develop effective treatment outcomes and mitigation strategies. Detailed knowledge of the physical dimensions (anatomy), mechanical properties (strength, elasticity) and structural composition of arteries is required. This information is poorly described or unknown for the equine pulmonary vascular system. Comparative information between these properties in lung regions typically affected and unaffected by EIPH will be obtained from five horses and analysed for differences which will guide continued research into the cause of EIPH.

Gomez, D. - Enteroinsular axis in healthy horses and horses with gastrointestinal diseases during hospitalization

Endotoxemia are conditions where bacteria and their products gain access to the blood and set up widespread infections, often leading to death. Consequences of sepsis and endotoxemia include organ failure, loss of hormonal control, and metabolic/electrolyte derangements, including high glucose (hyperglycemia). These abnormalities are linked to severity of illness and death. Recent research has shown that hormones from the intestine (known as incretins) are important to control glucose levels and the ability of the pancreas to produce insulin. However, there is no information on the incretins in horses with gastrointestinal disease. The goal of this study is to investigate incretins (GLP-1, GLP-2, GIP) and insulin in healthy horses and horses with colic and diarrhea and determine their association with clinical findings, severity of disease, and likelihood of mortality. This information will have clinical implications in the diagnosis, treatment, and prognosis of critically ill horses.

Koch, T. - Mesenchymal stromal cells for the treatment of equine tendonitis

Tendon and ligament injuries are common in the equine athlete. These types of soft tissue injuries result in significant economic loss to the equine industry each year as a result of decreased performance prolonged rehabilitation, and recurrent injury. Even though tendons do heal with rest, the fibroelastic scar tissue formed is functionally deficient in comparison to more flexible tissue of normal tendons. The result is compromised performance of the horse and high re-injury rates. Currently, tendon injuries are treated in numerous ways including simple lay-off and rest, controlled rehabilitation exercise programs, shock-wave therapy, and biologics such platelet rich plasma and so-called stem cell therapies to name the most common therapies. This range of treatments reflects that no treatment has proven superior, and that adequate tendon repair remains an unmet clinical need. Culture expanded mesenchymal stromal cells (MSC) have shown promise in reducing the re-injury rate in horses suffering from tendonitis. Improved MSC efficacy may be achieved by extending the dwell time of the cells within the tendon tissue. This has the prospect of healing more horses and extending the careers of more horses suffering from tendon injuries. Improved MSC efficacy may be achieved by extending the dwell-time of the cells within the tendon tissue. Hyaluronic acid (HA) is used to extend dwell-time of cells within synovial joints. This increased dwell-time is expected to be associated with increased inflammatory modulation within the tissue and improved tissue healing.

Koenig, J. - Mesenchymal stromal cells for the treatment of equine osteoarthritis

Mesenchymal Stromal Cells (MSC) has been shown to alleviate pain in mild to moderate osteoarthritis (OA) of the fetlock joint. To date, these cells have been from single donor animals which makes the therapeutic response less standardized. We hypothesize that equine umbilical cord blood (eCB) MSC are safe and effective in treating joint pain and inflammation in an injury-

induced equine model compared to placebo treatment. Our objectives are: 1) To compare the clinical safety and efficacy of eCB-MSCs with that of saline in an equine fetlock-chip model; 2) To compare joint response to treatment on a molecular level to gain insights into possible mode of action of the eCB-MSCs. These feasibility studies will be conducted in research horses, and the horses will be returned to the research herd upon completion of the study. We expect that the tested cell formulation will not trigger significant adverse reactions following multiple injections. These results will set the stage for testing in horses with lameness due to fetlock OA.

Valverde, A. - Comparison of two intraoperative lidocaine constant rate infusions on cardiorespiratory function and quality of recovery in healthy isoflurane-anesthetized horses undergoing elective surgery

Delivery of general anesthesia using a combination of at least 1 injectable anesthetic drug during maintenance with inhalational anesthetics is nowadays very common in equine anesthesia and known as balanced anesthesia or partial intravenous anesthesia. Reduced doses of individual anesthetic drugs are possible with balanced anesthesia techniques because of synergistic or additive effects between the different drugs and often result in better analgesia and relaxation, less cardiorespiratory depression, and in horses may contribute to a better quality of recovery.

Anesthetic mortality in horses is the highest among domestic species and recent studies show that most of the fatal outcomes occur in the postoperative period, including the recovery phase from anesthesia; therefore, the impact of intraoperative anesthetic drugs on the quality of recovery should be thoroughly considered.

Lidocaine, routinely used intraoperatively in balanced techniques, has a sparing effect on the required concentration of inhalational anesthetic through analgesic and central nervous depression effects, which promotes a more stable cardiorespiratory function and a lighter plane of anesthesia. A negative association of lidocaine with the quality of recovery can outweigh these benefits by causing ataxia and visual dysfunction, especially if the infusion of lidocaine is not stopped for at least 30 minutes before the end of surgery, since plasma and tissue concentrations can be high at the time the horse attempts to recover and interfere with motor function and coordination. This study will investigate the feasibility of a higher rate of lidocaine and its effects during anesthesia and the recovery period.

zur Linden, Alex - Equine Pulmonary Biopsy: Improving Safety and Efficacy

Percutaneous lung biopsy is a common method for obtaining diagnostic samples of lung tissue abnormalities in humans and other species. Due to blood vessels and airways that run throughout the lung tissue, complications can arise due to puncture of high flow structures during biopsy. Currently there has been no characterization of the detailed branching of either airways or blood vessels within the equine lung. Because anatomy differs between individuals, and anomalies of anatomy may occur, a preventative strategy will further increase safety of the procedure. Filling the biopsy tract with a material to reduce bleeding and air leakage, shows promising results but is not yet standard practice. By using data collected from dissection and multi detector computed tomography (MDCT) of cadaver horse lungs, we plan to elucidate the paths of major vessels and airways within the equine lung. Correlation of regions of minimal functional importance with external anatomical landmarks on adult equine cadavers will allow us to make recommendations on the safest locations for biopsy. These recommendations will be provided as landmarks easily identified by clinicians to improve the safety of the procedure in adult horses, which due to size, must be performed without imaging guidance. Development of a preventative step following biopsy will begin with testing gel foam embolization techniques for air and blood leakage in ventilated and perfused cadaver lungs. We hypothesize that greater anatomical knowledge, recommendations for biopsy locations, and preventative strategies will increase the safety and efficacy of blind percutaneous lung biopsy in horses.

Continuing Projects:

Arroyo, L. Culture-Based Molecular Profiling of the Colonic Bacteria of Horses with Typhlocolitis

Typhlocolitis is an inflammatory process of the cecum and colon that can lead to acute and severe diarrhea in horses. Affected horses can develop life-threatening hypovolemia, electrolyte and acid-base disorders, toxemia and sepsis. The most common enteropathogens associated with diarrhea in adult horses include *Salmonella* spp., *Clostridium* spp (mainly *C. perfringens* and *C. difficile*), *Neorickettsia risticii* (endemic areas) and coronavirus; but a causal agent for a large proportion of these cases (>60%) cannot be established. In recent years, culture-independent methods revealed that microbial communities of the cecum and colonic contents of healthy horses are dominated by a fairly stable population of Firmicutes and either Bacteroidetes or Verrucomicrobiota. This method also showed that there is marked decrease in microbial richness and diversity in humans and animals with gastrointestinal disease. The aim of this study is to characterize the anaerobic bacteria within the large colon by combining culture-enriched-based methods and molecular profiling of intestinal contents of horses with or without colitis.

Arroyo, L. Improving Fecal Microbiota Transplantation in Horses.

Fecal transplantation has saved thousands of lives in other species, but the method needs to be refined before it can be used to treat horses with intestinal flora imbalances (e.g. colic and colitis). The intestinal flora, also called microbiota, is comprised by thousands of microorganisms, especially bacteria. It is now known that the intestinal bacteria are very important to maintain health and that several diseases can occur because of imbalances in the composition of this bacteria (called dysbiosis). Diseases affecting the gastrointestinal tract are the main cause of mortality in horses and bacterial imbalances have been demonstrated in horses with colitis, colic and under stressful situations (e.g. post-partum and shipping). Recent efforts have focused on manipulation of the intestinal bacteria to treat and prevent dysbiosis. Microbiota manipulation can be achieved by controlling diet, by using therapies such as antibiotics and probiotics, or by transferring the bacteria from a healthy individual to a patient. This procedure is called "fecal microbiota transplantation" (FMT). FMT has been used with great success to treat other species, but our preliminary data demonstrated that current recommendations are not efficient in horses. Therefore, a refinement of the method is necessary before FMT can be recommended to be used in horses. In this study, we propose to test new doses to successfully use FMT to restore the normal intestinal bacteria of horses with bacterial imbalance. We will also bypass the proximal portions of the intestine by delivering the microbiota directly into the large colon to try to increase FMT efficacy. Experimental Design: We propose to induce microbiota imbalance in a group of horses by treating them with oral antibiotics (TMS). Then we will evaluate the efficiency of FMT by comparing current recommendations (FMT once a day) with a group receiving the procedure four times per day. Fecal bacteria before and after FMT will be evaluated using next-generation DNA sequencing. Furthermore, we will deliver FMT directly into the distal gut to determine if the FMT efficacy can be increased.

Arroyo, L. - Investigation of *Clostridium innocuum* in horses with diarrhea

Typhlocolitis in horses is, by definition, inflammation of the cecum and colon, and diarrhea is the hallmark clinical sign of this intestinal disorder. Despite comprehensive microbiological investigative efforts to determine the cause of colitis, an etiological agent cannot be established for a large proportion (>60%) of these cases.

A recent study reported *Clostridium innocuum* as a potential causative agent of antibiotic-associated (AAD) diarrhea in human patients. Clinically, in people it is characterized by diarrhea or severe colitis, including the most severe pseudomembranous colitis form. *C. innocuum* has

been also associated with recurrent diarrhea in patients with prior *C. difficile* infection, and other forms of severe disease including bacteremia, endocarditis, and abscesses.

The isolation of *C. innocuum* from stool samples of human patients with suspected *C. difficile* infection led to the hypothesis that this organism may play a similar role as *C. difficile* in causing antibiotic associated diarrhea. Therefore, the aim of this study to investigate whether *C. innocuum* is present in fecal or intestinal contents of horse with colitis.

Arroyo, L. Effects of exercise and Lasix on the pulmonary artery hemodynamics of EIPH affected horses.

Effects of exercise and Lasix on the pulmonary artery hemodynamics of arterial wall remodeling (calcification and fibrosis) occurs in racehorses and is the most important cause of vascular stiffness in humans. There is a growing body of evidence to support the hypothesis that excessive pressure pulsatility resulting from arterial stiffness promotes abnormalities in micro-vascular structure and function, contributing to end-organ damage and dysfunction in humans (Mitchell GF 2008; Tan W et al., 2013). We hypothesize therefore that stiffening of the pulmonary arteries of racehorse's leads to hemodynamic changes (excessive pressure pulsatility) promoting micro-vascular structural and functional abnormalities in the lungs, and that this contributes to the development of EIPH. Our research group is a multidisciplinary team of equine and human clinicians, pathologists and bioengineers that for many years has been conducting equine pulmonary mechanics research (material properties, wall stress, pulse wave quantification, *in vitro* functional testing). We have access to specialized research equipment and clinical facilities necessary for this type of research project and we have already developed both innovative lab and clinical testing methods and analysis strategies. We aim to investigate the compliance of the pulmonary arterial wall of horses with arterial remodeling (i.e. fibro-calcification), the hemodynamics of the pulmonary artery blood flow, and the potential role of these alterations in the pathogenesis of EIPH in horses.

Arroyo, L. Hyperimmune plasma transfusion for the prevention of R. equi infections in foals

Rhodococcus equi causes severe pneumonia in foals worldwide as well as other forms of extrapulmonary infections that are also severe. Foals acquire the infection shortly after being born which makes prevention of this disease difficult. Administration of *R. equi*-specific hyperimmune plasma (HIP) intravenously is the only form of prophylaxis available, as a vaccine does not currently exist. While it does not prevent infection, HIP administration has been shown to decrease severity of pneumonia in newborn foals experimentally challenged, although the protective mechanism of HIP remains poorly understood. The aim of this study is to determine the clinical usefulness of HIP administration under field conditions in Canada, as this has not been previously evaluated.

Arroyo, L. The association of Equine Parvovirus-Hepatitis (EqPV-H) with Theiler's disease and the prevalence of EqPV-H DNA and antibodies in horses in Ontario.

Theiler's disease (TD) (aka: equine serum hepatitis) is an acute or subacute hepatitis of horses and is one of the most commonly recognized causes of acute hepatic failure in adult horses. The disease is sudden in onset and rapidly progresses with death occurring within 24-48 hours. Up to 80% of affected horses show signs of hepatic encephalopathy (head pressing, aimless walking, yawning). Horses that develop hepatic encephalopathy have a grave prognosis. The majority of cases occur 4-10 weeks after the administration of an equine biologic ("biologic-associated TD") with the most common biologic being tetanus antitoxin. The administration of equine serum or plasma has also been implicated. In some cases, it has been observed there are horses affected that have not been treated with any equine biologic ("non-biologic associated TD"), and this led

to the suggestion that an infectious and possibly contagious agent may be involved. A virus similar to the human hepatitis viruses was considered to be the most likely cause. Since 2011, three novel flaviviruses have been reported to be associated with equine hepatic disease. These include non-primate hepacivirus (NPHV), also known as equine hepacivirus (EqHV), equine pegivirus (EPgV) and Theiler's disease-associated virus (TDAV). Of these viruses only NPHV has been shown to be hepatotropic in the horse. In 2018, a novel equine parvovirus, designated equine parvovirus-hepatitis (EqPV-H) was identified in the serum and liver of a horse that died of Theiler's disease 65 days after treatment with equine origin tetanus antitoxin (TAT). This virus was also found in the administered TAT and it has been suggested that EqPV-H can cause Theiler's disease in horses. EqPV-H had been detected in horses suffering from liver disease in Ontario, therefore, the objective of this study is to determine the prevalence of the virus in a subset of horses in Ontario.

Arroyo, L. Dynamics of vitamin D metabolites in healthy and hospitalized horses with enterocolitis

Equine enterocolitis (diarrhea, colitis) is a major cause of morbidity and mortality worldwide. Consequences of equine colitis include loss of hormonal control, metabolic/ electrolyte / fluid derangements, and organ failure. Vitamin D has a multitude of functions, including regulation of calcium and phosphorus, promotes bone health, controls the immune system, and reduces inflammation. Low vitamin D levels have been linked to mortality in sick people. There is no information on how the blood levels of vitamin D change in sick and healthy adult horses and whether these changes are associated with other hormones, inflammatory factors, and mortality in hospitalized horses with colitis. The goal of this study is to determine whether changes in vitamin D during hospitalization of horses with colitis are associated with laboratory abnormalities, disease severity and outcome.

Beeler-Marfisi, J. The relationship between EIPH and exposure to ambient air pollution in Thoroughbred and Standardbred racehorses

Worldwide, the prevalence of exercise induced pulmonary hemorrhage (EIPH) is estimated between 44% to 85% of Thoroughbred (TB), and up to 87% in Standardbreds (SB) racehorses. The condition is important to Ontario racing because affected horses are suspected to have shortened racing careers, and in rare instances, may suffer sudden death from massive hemorrhage. EIPH is caused by stress failure of capillaries in the caudodorsal lung, secondary to repeated high-intensity work. However, Veterinarians who regularly assess racehorses by tracheobronchoscopy at Woodbine and Woodbine-Mohawk Park (Mohawk) racetracks in Ontario, Canada are concerned that their proximity, respectively, to Lester B. Pearson Airport and a major highway is exposing racehorses to excessive air pollution, which might contribute to development of EIPH. Two previous studies showed a relationship with EIPH and cooler temperature, but studies on air pollution and EIPH are lacking. The provincial and federal governments have air quality monitoring stations and weather stations located close to Woodbine and Mohawk. These collect air pollution data including nitrogen dioxide (NO₂), ozone (O₃) fine particulate matter less than 2.5 microns in diameter (PM_{2.5}), and temperature data.

Beeler-Marfisi, J. - Identification of putative exercise-induced pulmonary hemorrhage causing variants in Ontario's Thoroughbred racehorses

Exercise-induced pulmonary hemorrhage (EIPH) is a common disease affecting up to 80% of training and racing Thoroughbreds (TBs). EIPH refers to bleeding within the lung during exercise and is diagnosed by visualizing blood in the trachea by endoscopic examination after work. The disease is caused by stress failure of the lung's capillaries during intense exercise from increased capillary pressures in what should otherwise be a low-pressure organ. Additionally, for unknown

reasons, severely affected horses can suffer fatal bleeding into the lungs during high-intensity work. In 2001, the Alcohol and Gaming Commission of Ontario, developed the Equine Incidences in Ontario Racing program, and mandated that any horse dying during or within 60 days of a race must undergo post-mortem examination. From 2003-2015, pulmonary hemorrhage and EIPH were determined as the cause of death in 76% of all sudden death cases, representing 37% of all sudden deaths in TB racehorses. Therefore, the disease is important to the racing industry not only as a cause of poor performance but also for its negative impact on the health and welfare of the horse, and the distress it causes to the general public and the people involved with the affected animal. Genetics were shown to have a moderate to high role in determining whether a TB will develop EIPH. As such, there may be genetic markers, or variants, within the TB genome that are associated with the development of EIPH. These variants could be used to identify horses at high risk of developing EIPH or fatal EIPH; however, these variants have yet to be discovered. In this study, we will identify genetic markers of EIPH using whole-genome sequencing of DNA from TBs with fatal EIPH. Our long-term goal is to identify and verify these EIPH-causing variants, with the aim of developing a genetic test, which could be used to inform breeding and training decisions in genetically predisposed TBs.

Chenier, T. Do mast cells play a role in persistent breeding-induced endometritis in the mare?

Over 18% of Ontario's 212,000 horses are designated as breeding stock, and reproductive health is critical to the economic success of the industry. Reproductive efficiency in horses is generally low, for a variety of reasons, including infertility caused by uterine disease such as endometritis. Endometritis is the third most common medical condition encountered overall in equine veterinary practice and approximately 60% of mares affected by endometritis are barren. One type of endometritis, persistent breeding induced endometritis, or PBIE, occurs in mares that have an abnormal inflammatory response after breeding. Up to 43% of broodmares suffer from this condition, depending upon the study and the definition used. Given the large number of horses in the breeding sector in Ontario, endometritis and more specifically PBIE, causes a significant economic impact to the breeding industry. One type of inflammatory cell, the mast cell, may play a role in PBIE. While mast cells are generally thought of as inducing allergic reactions, they are also involved in many chronic inflammatory conditions and can induce fibrosis. Both of these occur in PBIE-affected mares. This study will determine the number of mast cells in the endometrium of PBIE-affected and unaffected mares and evaluate whether cell numbers change in response to artificial insemination. A better understanding of the abnormal inflammation that occurs in PBIE-affected mares will lead to new and improved treatments for this important condition that causes infertility.

Cribb, N. Ultrasound examination for assessment of closure of the nephrosplenic space in horses

Currently, preventative laparoscopic surgery for nephrosplenic entrapment colic is the recommendation for horses to reduce the risk of disease of this type. The technique is well established but 2 recent reports in the scientific literature have highlighted our lack of knowledge of aspects of this surgery. The papers have highlighted that firstly, we currently do not know how long the preventative effects from the surgery last, and, secondly, we do not know whether the outcome from the surgery can be evaluated by ultrasound examination. In our research herd, there are 12 horses that have recently undergone closure of the nephrosplenic space by the PI. It is our aim to follow these horses for up to 3 years following their surgery to determine whether the adhesions last this length of time. These findings will be correlated with a concurrent ultrasonographic examination to see if this imaging modality can be used to determine closure of the space.

Gomez, D. – Fecal Microbiota of Surviving and Non-surviving Horses with Acute Diarrhea

Acute diarrhea is a major cause of morbidity and mortality in horses worldwide. In Ontario, the mortality rate of diarrheic horses hospitalized at the Ontario Veterinary College is 35% (n = 75/216) from which Thoroughbred and Standardbred breeds represented approximately 50% of the cases. Several pathogens are associated with acute diarrhea in horses, however the final cause of the diarrhea is commonly not identified. Some studies showed that the bacterial communities of the gut are distorted in horses with diarrhea, those studies included a small number of cases, and therefore the impact of gut bacteria changes on clinical outcomes such as mortality and the key bacteria associated with a healthy gut or diarrhea remains generally unidentified. Therefore, larger clinical studies using newly developed statistical methods are needed to address these knowledge gaps, and better understand the bacterial changes that occur during diarrhea in horses. This study aims to investigate the differences in the gut bacterial communities between healthy and horses with acute diarrhea. Additionally, this study will examine the gut bacterial communities of surviving and non-surviving diarrheic horses. We hypothesize that the gut bacterial communities are significantly different in horses with colitis compared to healthy control horses, and that the gut bacterial communities are particularly distinct in diarrheic non-surviving horses. Elucidating the importance of the gut microbiota in the development of diarrhea and subsequent mortality of horses have clinical implications.

Gomez, D. – Hypotonic versus isotonic maintenance fluids in critically ill foals

Critically ill foals often receive maintenance intravenous fluids (IVFs) to correct and maintain normal hydration once the initial fluid resuscitation therapy has finished. Historically, administration of low-sodium (hypotonic) fluids as opposed to fluids with sodium concentration similar to those in the blood (isotonic fluids) was recommended. This practice was extrapolated from guidelines developed for healthy children in 1950s. However, this recommendation has recently been questioned in human medicine because some children can develop life-threatening low blood sodium levels. Thus, the use of isotonic fluids has increased for maintenance of hydration in ill children while the use of hypotonic fluids declined. Despite this, the current veterinary literature continues recommending hypotonic solution for maintenance IVFs in sick foals. This approach can be adequate in some cases because anecdotal reports suggest that administration of isotonic fluids to foals could lead to complications such as high levels of sodium in blood, fluid accumulation in the body, and increased blood pressure. However, these recommendations lack of evidence-based support. The objective of this study is to compare the effect of isotonic versus hypotonic maintenance fluid therapy on blood sodium concentrations, cardiovascular variables, sodium-regulating hormones, and urine production in critically ill foals. Results of this study are expected to provide data to support evidence-based protocols and the development of guidelines for fluid therapy in critically ill foals.

Gomez, D. – Endothelial glycocalyx degradation in critically ill foals

The endothelial glycocalyx (EG) is a thin gel-like layer covering the internal surface of blood vessels that regulates the transport of fluids, proteins oxygen and nutrients to the tissues. The EG also provides anticoagulant effects and protects the blood vessels from toxic insults. Damage to the EG occurs when the blood supply to the tissue is compromised, in inflammation, and in patients with localized or blood-borne infections. In human medicine, there is increasing evidence that administration of large volume of fluids during resuscitation of critically ill patients damage the EG, even more than the disease itself. Increased blood levels of markers associated with EG damage are also associated with increased risk of death. Administration of resuscitation intravenous fluid is one of the most important interventions in the management of critically ill foals presented to referring hospitals. However, no information is available regarding the blood levels of markers associated with EG damage in critically ill foals, their association with mortality and

the impact of resuscitation fluid on the EG degradation. Therefore, the objective of this study is to determine the blood levels of EG damage markers in critically ill foals, before and after fluid resuscitation to determine whether this practice can worsen the integrity of the blood vessels. We hypothesise that the blood levels EG degradation markers will be associated with disease severity, degree of inflammation, as well as volume and speed of intravenous fluids administered during early resuscitation.

Hurtig, M. The Safety and Efficacy of Intra-Articular Therapies

We intend to compare the efficacy of mesenchymal stromal cells (MSCs) - previously known as mesenchymal stem cells - versus steroid injections in the equine fetlock for treatment of joint injury and osteoarthritis. This project also addresses the safety of steroid injections in joints which continue to be widely debated in the racing and sporting industry. We know from human studies that injection of MSCs result in better and longer results in the human knee than steroids. Also, preliminary studies in equine stifle and fetlock lameness seem to indicate the MSC therapies improve the recovery of the horses. Our own work has shown that we can identify the best MSCs from the specific donors and use these cells in joints to reduce inflammation. In addition, the co-investigators in this proposal have shown that MSCs can be thawed, handled and injected without damaging the cells, and that a single injection of similar MSCs can reduce or stop the progress of osteoarthritis in the knee of sheep. Since chip fractures in the fetlock joint are relatively common source of lameness and contribute to cartilage damage, we will create a small chip fracture in the fetlock joint of research horses and follow the progress of physical and metabolic cartilage injury in horses that receive MSCs or steroids. In order make this model more aligned with real-life management of these injuries we propose to exercise the horses in the form of galloping and jumping during the evaluation of the treatments.

Koch, T. Enhancement of Immune-Modulatory Properties of eCB-MSCs

Horses are multi-use livestock that contribute more than \$19 billion annually to the Canadian economy. Joint inflammation due to osteoarthritis or injury is among the most common causes of lost training days or premature retirement in equine athletes. Stem cells hold the promise of novel therapeutic approaches to these difficult-to-treat problems. Mesenchymal stromal cells (MSCs) can be expanded in culture to achieve the desired number for treatment and are capable of modulating cells of the immune system even after long-term storage, which makes them desirable for treatment of immune and inflammatory disorders. We expect that equine cord blood-derived (CB-) MSCs can be enhanced to have improved anti-inflammatory and immunomodulatory properties for future use as treatment of a variety of inflammatory or immune related disorders in horses. Our sole objective of this study is to determine possible in vitro enhancement of equine CB-MSCs using a novel proprietary culture engineering method to improve these immunomodulatory properties. The work will generate pivotal data to support the clinical evaluation of enhanced allogenic equine CBMSCs to treat joint inflammation in research horses. Upon proving the concept in research horses with induced inflammation, the enhanced equine CB-MSC would be tested in a randomized clinical trial for the treatment of joint inflammation in client-owned horses suffering from osteoarthritis. Fully implemented, this therapy would provide a safe, efficacious, and technically simple treatment for selected inflammatory or immune-related disorders in horses.

Koch, T. Equine Mesenchymal Stromal Cells Ability to Help Fight Bacterial Infections

Antimicrobial resistance may be one of the biggest medical challenges in the coming decades. This issue transcends species and a one-health approach, including both veterinary and human patients, is therefore desirable to test new potential treatment tactics. One recent approach is the

use of mesenchymal stromal cells (MSC) to eliminate microorganisms. MSC have demonstrated antimicrobial effects not only through the modulation of the immune response, but also through the secretion of antimicrobial substances. These properties may allow MSC to make currently ineffective antibiotics effective again against resistant bacteria. Understanding what these MSC secreted substances are may allow us to produce or isolate these substances and use them as regular drugs in combination with currently utilized antibiotics to develop new treatment strategies. We have selected bacteria commonly affecting horses to prove the principle idea of the project that MSC can make antibiotics more effective. MSCs from five horses will be paired with three isolates of anti-microbial resistant bacteria and tested for antimicrobial susceptibility. MSC included in the MSC bacterial co-culture will be harvested following co-culture, and RNA will be isolated for next generation sequencing (NGS) to evaluate which MSC genes could be related to this antimicrobial effect. This work has the long-term potential to discover new therapies that can either potentiate current antimicrobials or maybe even act as novel antimicrobials on their own. This foundational work will support future funding applications to support clinical trials in client-owned horses of natural diseases.

Koch, T. Allogeneic Equine Umbilical Cord Blood Mesenchymal Stem Cells for Treatment of Exercise Induced Pulmonary Hemorrhage

Exercised induced pulmonary hemorrhage (EIPH) is a common condition in racehorses and a significant equine welfare issue. The etiology of EIPH is poorly understood but pulmonary inflammation is a downstream consequence of frequent bleeding. Mesenchymal stem cells (MSC) have non-progenitor functions through secretion of various proteins. Through such secreted factors MSC have demonstrated immune modulatory properties in vitro and in vivo. In our lab we have demonstrated that equine umbilical cord blood-derived (CB) MSC are more immune-modulatory than the more commonly used MSCs derived in vitro from adipose tissue or bone marrow aspirates. We have also shown that CB-MSC suppress lymphocyte proliferation in vitro equally immediately after thawing or after one week of culture expansion post-thawing. These CB-MSC have low to no expression of MHC-I and II, suggesting they can be applied in an allogeneic manner. In vivo studies in the horse may lend support to allogeneic application of CB-MSC. Attenuation of pulmonary inflammation from bleeding following intravenous MSC injection has been shown in vivo in humans and non-equine species. The hypothesis of this project is that allogeneic equine CB-MSC will attenuate EIPH associated pulmonary inflammation. Funds are sought to perform a feasibility study to test this hypothesis. Use of allogeneic CB-MSC holds the promise of developing a novel off-the-shelf cell-based product for this important equine disorder.

Koch, T. MicroRNAs as Equine Joint Health Markers

Injuries involving joint cartilage such as osteoarthritis (OA) are some of the most common causes of lameness and pain in horses. Sophisticated means of monitoring joint health status are needed to allow early detection and intervention as well as monitoring the effect of interventions. MicroRNAs are a class of short non-coding RNAs that participate in various biological processes including cartilage development and homeostasis. MicroRNAs have been measured at the tissue level, in synovial fluid and serum, and may reflect some aspects of the health status of the animal. MicroRNAs may therefore be useful biomarkers of joint health that could be evaluated through frequent blood and or joint fluid sampling and analysis. In the present proposal, operating funds are sought to determine robust methods for detecting microRNAs in synovial fluid and blood plasma from horses and to determine cut-off values for selected microRNAs in healthy horses and horses with joint inflammation.

Koch, T. – Assessment of safety of encapsulated MSC and pooled MSC in fetlock joints

Mesenchymal Stromal Cells (MSC) has been shown to alleviate pain in mild to moderate osteoarthritis (OA) of the fetlock joint. To date, these cells have been from single donor animals

which makes the therapeutic response less standardized. Furthermore, the injected cells are often removed from the joint quickly, which likely limits their efficacy. We hypothesize that injection of pooled MSCs from multiple donors within a hydrogel formulation into normal fetlock joints is safe and comparable to injection of non-encapsulated single donor MSCs. Our objectives are: 1) To compare and contrast the safety of single donor MSCs and pooled MSCs in normal fetlock joints; 2) To compare and contrast the safety of encapsulated MSCs and non-encapsulated MSCs in normal fetlock joints. These feasibility studies will be conducted in research horses, and the horses will be returned to the research herd upon completion of the study. Through our industry partner, we have access to a novel way to inject MSCs into joints and trap them there by first mixing them with a gelatin that hardens into microspheres small enough to go through a needle. The product is analogous to a slow-release capsule for medication but developed for cells. We expect that the tested cell formulation will not trigger significant adverse reactions following multiple injections. These results will set the stage for testing in horses with lameness due to fetlock OA.

Koch, T. – Assessment of safety and potential of antisense miRNA-181 to treat fetlock OA

Osteoarthritis (OA) of the fetlock joint is a major equine welfare problem across breeds and disciplines leading to loss of training days, pre-mature retirement, or reduced performance. No therapies exist that delay progression of fetlock OA. MicroRNAs are small molecules that control gene expression; increased microRNA levels reduce expression of selected proteins. MicroRNA number 181 has been shown to be overexpressed in human facet joint OA. Injection of microRNA 181 into lab animal joints resulted in joint disease suggesting a critical role of microRNA 181 in joint health. Moreover, injection of antisense miR-181, which binds to and inactivates the effect of microRNA 181 in mice and rat models of joint disease, prevented the expected joint damage. This suggests that antisense miR-181 may be a useful therapy to treat OA.

We hypothesize that injection of antisense miR-181 into equine fetlock joints is safe and associated with reduced joint inflammation and pain. Our objectives are: 1) To determine the safety of antisense miR-181 in normal equine fetlock joints 2) To determine the safety, anti-inflammatory properties and analgesic effects of antisense-miR-181 in fetlock joints with documented OA and pain. 3) To determine if antisense miR-181 injected into the fetlock joint is detectable in the bloodstream. We expect that multiple injections of antisense miR-181 will not be associated with significant adverse reactions in normal or OA fetlock joints. We expect that multiple injections of antisense miR-181 will lead to a reduction of miR-181 concentrations within the fetlock joint, reduced lameness, and reduced joint inflammation.

Koenig, J. Effect of Extracorporeal Shock Wave Therapy on Intracellular Stress and Immunomodulatory Function of Equine Umbilical Cord Blood Mesenchymal Stromal Cells

Electrohydraulic shock wave (ESWT) has been shown to increase proliferation and differentiation of equine umbilical cord blood derived mesenchymal cells (CB-MSCs). The mechanism of this effect is unknown. It could be the result of cell stress or alternatively, due to production of cytokines or other secreted substances. Further evaluation of this mechanism is needed to develop a combined shockwave-CB-MSC treatment to enhance tissue healing.

Koenig, J. Evaluation of the repeated use of allogeneic umbilical cord blood mesenchymal cells in clinical cases of equine superficial digital flexor tendinitis.

Tendon and ligament injuries are common in the equine athlete. These types of soft tissue injuries result in significant economic loss to the equine industry each year as a result of decreased performance, prolonged rehabilitation, and recurrent injury. Even though tendons heal well, the scar tissue formed in this repair is functionally deficient in comparison to normal tendon. The result

is compromised performance of the horse and high re-injury rates. Improved clinical lameness outcome and a better overall prognosis for return to exercise was noted upon injection of simple bone marrow aspirate directly into damaged suspensory ligaments. This observation spurred the interest of biologics for the treatment of equine tendon injuries. Concerns related to the volume of unaltered bone marrow and its content of bone spikes and fat cells on tendon healing lead to the use of cultured stem cells derived from bone marrow (BM) aspirates. Such BM stem cells have been used commercially to treat injured tendons in more than 500 horses with naturally occurring injuries. Only 18% of these horses were re-injured once they entered full training, which appears more favorable than a 56% re-injury rate reported in a previous study where a routine rehabilitation protocol was used. This much improved reinjury rate of only 18% was only observed when the stem cells were injected in the first 6 weeks after injury. Bone marrow derived stem cells need to be culture expanded in the lab after harvest from the horse's bone marrow, which can take 4 weeks. This requires very prompt action after injury to ensure a diagnosis is established, bone marrow is harvested from the horse and transported to the lab for expansion and back to the veterinarian to be injected within 6 weeks after injury to achieve the reported benefits. We have shown previously, that it is safe to inject allogeneic (unrelated horse) equine umbilical cord blood stem cells into horse's joints and that equine umbilical cord blood stem cells are more immune-modulatory than stem cells from equine bone marrow, even after prolonged freezer storage. These findings support the cell banking of umbilical cord blood stem cells for later allogeneic use, which means they can be taken off the shelf and injected into horses as needed without having to wait for culture expansion.

Koenig, J. Effect of extracorporeal shockwave therapy on umbilical cord blood mesenchymal stromal cells

Shockwave has been used as a treatment to decrease the healing time and improve the quality of the repair in bone and soft tissue injuries, but the exact mechanism is not completely understood. Intra-lesional (into bowed tendons) administration of stem cells in combination with shockwave has been used as an alternative treatment for orthopedic diseases like tendon and ligament lesions in horses, without scientific evidence, but anecdotally has resulted in faster healing times and return to function. There is a need to evaluate the effect that shockwave has on stem cells. One in vitro study showed that equine fat derived stem cells grow more rapidly and differentiate faster into different tissues, but nothing is known about the secretory function of these cells or the effect of shockwave on bone marrow or umbilical cord blood derived stem cells. Labelling these cells allows tracking of these cells also in vivo. Therefore, we hypothesized that shockwave will enhance the progenitor (their ability to differentiate into different tissue) and nonprogenitor (their anti-inflammatory and secretory) functions of stem cells. Our objectives are to firstly evaluate if shockwave increases umbilical cord blood derived stem cell growth rate, proliferation rate and differentiation in comparison to untreated cells in vitro. And secondly, to evaluate the effect of shockwave on topically injected allogeneic (derived from unrelated foals) umbilical cord blood derived stem cell and follow the cells in a neck wound model in vivo.

Koenig, J. – Cone beam CT technique development to image the standing horse cervical spine.

Using computed tomography (CT) to diagnose diseases of vertebra and associated structures of the neck in people and other species is common. In horses we rely largely on radiographs to diagnose diseases of the neck. In a recently published study we showed that diagnosing osteoarthritis in neck joints on radiographs is not reliable and not repeatable. Misdiagnosis of compressive lesions with survey radiography alone occurs in 61% of cases compared with necropsy. CT evaluation of the neck in horses enables more accurate identification of bone and soft tissue lesions than traditional laterolateral radiography. Currently, to perform CT general anesthesia is required and complete cervical vertebral column examination has been limited by

horse size and CT scanner gantry size. Development of a standing CT technique will avoid the expense and risk of general anesthesia and the cone beam CT is better able to image the caudal cervical spine. Development of this technique may also allow for CT myelography of the standing horse as the soft tissue differentiation with cone beam CT is limited, but excellent for bone.

We hypothesize that cone beam CT will allow evaluation of the cervical spine in standing horses that is comparable to that of a standard helical CT scanner for bones, and the procedure can be safely performed with reproducible results, and will identify bony abnormalities in clinical horses that are not fully characterized or seen with radiographs.

Weese, S. - Molecular epidemiology of Streptococcus equi subsp equi in Ontario horses

Streptococcus equi is the cause of 'strangles', an important and highly contagious equine disease. In addition to the impact on individual horses, identification of *S. equi* in a horse may lead to voluntary quarantine of entire facilities or restriction of horses from affected facilities from competition. The costs of disruptions in training and competition can be substantial, as can the healthcare costs for affected horses and testing costs required for disease control.

Despite its importance in Ontario, little is known about the epidemiology of disease, such as reservoirs and transmission patterns. Molecular typing involves evaluation of part of the bacterium's gene sequence (in this case, the SeM gene) to identify different strains, and is a key component of studying disease spread. However, there has been limited typing performed internationally, and none reported in Canada. Development of a typing database will facilitate future research and infection control efforts. As a database of strains grows, more refined information about the role of different strains in disease and spread, and better understanding of how this bacterium circulates in the horse population will be obtained. The objectives are to molecularly characterize *S. equi* from horses in Ontario, from sporadic disease and outbreaks, and to develop an Ontario *S. equi* typing database for future study and surveillance. For this study, *S. equi* will be isolated from horses in Ontario through collaboration with the Animal Health Laboratory, OMAFRA and the Ontario Racing Commission. Information about the clinical disease, herd-level disease, transmission on farm and presumed source will be collected. Isolates will be typed by sequence analysis of the SeM gene. Strangles is an important equine disease and can be severely disruptive to farms or facilities. Greater understanding of the transmission of this bacterium will be useful for infection prevention and control, on facilities and more broadly.

Appendix 6: Research Publications:

Dr. Luis Arroyo

Arroyo LG, New Equine Fecal Transplant Research, Equine Guelph Research Annual Volume 19 - <https://thehorseportal.ca/2022/01/new-equine-fecal-transplant-research/> February 2022

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Dr. Janet Beeler-Marfisi

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Beeler-Marfisi J, Equine Asthma & Pollution, <https://thehorseportal.ca/2021/05/equine-asthma-pollution/> & YouTube video: <https://youtu.be/5VH9EP6n19w> June, 31, 2021

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Dr. Dorothee Bienzle

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Ramés Salcedo-Jiménez¹, Judith B. Koenig^{1*}, Olivia Lee², Thomas W.G. Gibson¹, Pavneesh Madan², Thomas G. Koch² Effect of extracorporeal shock wave therapy on equine umbilical cord blood mesenchymal stromal cells in vitro; Vet Surgery (abstract) 2018; Dec & Vet Surgery (abstract) 2020 July

Ramés Salcedo-Jiménez¹, Judith B. Koenig^{1*}, Olivia Lee², Thomas W.G. Gibson¹, Pavneesh Madan², Thomas G. Koch² Extracorporeal shock wave therapy enhances the in vitro metabolic activity and differentiation of equine umbilical cord blood mesenchymal stromal cells. Frontiers under review

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Dr. Elizabeth Scholtz

Endometrial nitric oxide synthase activity in mares susceptible or resistant to persistent breeding-induced endometritis and the effect of a specific iNOS inhibitor in vitro. Khan, FA, Chenier, TS, Foster, RA, Hewson, J, Scholtz EL. *Reproduction in Domestic Animals*. 2018. Vol 53 (3): 718-724.

Dr. Jeff Thomason

D. Halucha, W. Sears, J. Thomason. *Future Footing & Training Decisions*,

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Dr. Alex zur Linden

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Appendix 7: Research Presentations:

Dr. Janet Beeler-Marfisi

Copelin C*, Kang H*, Beeler-Marfisi J. Characterization of equine lymphocytes by flow cytometry. CORE recorded poster presentation. August, 2021

Heng Kang*, Gary Lee*, Dorothee Bienzle, Janet Beeler-Marfisi. Equine alveolar macrophages and blood monocyte-derived macrophages respond differently to barn dust-analogue challenge. ACVP/ASVCP Annual Meeting October 30-November 2, 2021 (Proceedings abstract & highlighted virtual poster presentation with online Q&A session)

Abbinash Sanmugam, Heng Kang, Janet Beeler-Marfisi. Alveolar macrophage expression of CD163 in healthy and mildly asthmatic horses. Summer CORE Program poster presentation. August 2020

Kang H, Bienzle D, Lee G, Piché E, Viel L, Beeler-Marfisi J. Flow cytometric analysis of equine bronchoalveolar lavage fluid cells in horses with and without severe equine asthma. Graduate Student Research Symposium August 25, 2020

Kang H, Bienzle D, Lee G, Piché E, Viel L, Beeler-Marfisi J. Flow cytometric analysis of equine bronchoalveolar lavage fluid cells in horses with and without severe equine asthma. ACVP/ASVCP Annual Meeting October 30-November 1, 2020 (Proceedings abstract & platform presentation)

Lee KCG, Beeler-Marfisi J, Viel L, Piché É, Kang H, Sears W, Bienzle D. Bronchial brush cytology, endobronchial biopsy, and immunohistochemical measurement of salsa as diagnostic tools for severe equine asthma. ACVP/ASVCP Annual Meeting October 30-November 1, 2020 (Proceedings abstract & platform presentation) - first author won the Young Investigator Award for this presentation

Fatima K, Kang H, Hammermüller J, Beeler-Marfisi J. Development of an in vitro model of equine lung tissue for the study of pathogenesis of mild equine asthma. December 4, 2020. BIOM4521 Course Presentation.

Sarjeant R, Kang H, Hammermüller J, Beeler-Marfisi J. Effects of fungal spores versus yeast-derived 1,3-beta glucan on monocyte-derived macrophages. ANSC4700. Poster Presentation, December 4, 2020

ACVP/ASVCP Annual Meeting 2020: Abstract being submitted on flow cytometric analysis of equine BALF cells, supported in part by EG 2017-01

January-February 2020: primary literature-supported content, visuals, and lecturer in Equine Guelph's "Respiratory Health – Exclusive to Racing" course

April 2019 on behalf of Equine Guelph: Can-Am All Breeds Equine Expo – Build Your Own Equine Upper Airway

August 2018: Bronchoalveolar lavage in horses to equine vet members of the Central Canadian Veterinary Association in Kemptonville, ON.

2017 & 2018 Four CORE platform & poster presentations – Quinn Marshall & Sylvie Becker – 2017, Brittany Lang & Kai Moore – 2018

Dr. Keith Betteridge

Raeside, J.I. and Christie, H.L. 2019. A 'new' estrogen metabolite: an epoxide of estrone as a sulfated steroid. So what! Southern Ontario Reproductive Biologists Ann Mtg June 2019

Dr. Dorothee Bienzle

Lee GKC, Beeler-Marfisi J, Viel L, Piché E, Kang H, Sears W, Bienzle D. Bronchial brush cytology, endobronchial biopsy, and immunohistochemical measurement of SALSA as diagnostic tools for severe equine asthma. Ann Meet Am Coll Vet Pathol, Virtual, Oct. 2020

Bienzle D, Katavolos P, Côté O, Tessier L, Lee G, Viel L. Insights into equine asthma pathophysiology from transcriptomics. Equine Asthma: Current understanding and future directions, Custer State Park, Custer, South Dakota, USA – May 22-25, 2019

Invited to speak on equine asthma at Eastern Ontario Thoroughbred Association Annual Meeting (2019)

Dr. Nicola C. Cribb

Massimo Delli-Rocili, DVSc candidate, presented the following research in a poster competition and won first place! Delli-Rocili M, Cribb NC, Trout DR, Thomason J, Valverde A. Effectiveness of a paravertebral block versus local portal blocks for laparoscopic closure of the nephrosplenic space: A pilot study. Veterinary Surgery 2020:1-8. Early View. Presented at 2019 ACVS symposium.

Dr. Tracey Chenier

The seroprevalence of Neospora caninum in Ontario broodmares: accepted for Oral presentation at the 28th Conference of the World Association for the Advancement of Veterinary Parasitology, May 2021 (Online Conference this year). Authors: Olivia Johns, David Pearl, Robert Foster, John Barta and Tracey Chenier.

Dr. Diego Gomez

Jaramillo C, Arias MP, Renaud D, Gomez DE. Comparison of blood gas analysis, electrolytes and plasma protein concentrations in horses at different altitudes. American College of Veterinary Internal Medicine (ACVIM) Forum, online format, 2020.

Gomez DE, Buczinski S, Darby S, Palmisano M, Mackay R. Comparison of different methods for measurement of electrolytes and detection of acid-base disorders in horses. American College of Veterinary Internal Medicine (ACVIM) Forum, online format, 2020.

Gomez DE, Buczinski S, Palmisano M, Darby S, Mackay R. Methodologic comparison of two analyzers for measurement of glucose and creatinine concentrations in sick horses. American College of Veterinary Internal Medicine (ACVIM) Forum, online format, 2020

Dr. Amy Greer

Rossi, T.M., T.L. O'Sullivan, and A.L. Greer. Descriptive network analysis of Ontario equine competitions: implications for disease control. Equestrian Canada Health and Welfare Committee, March 10, 2021

Greer, A.L., Preparing Equine Facilities for Shelter in Place Orders. Equestrian Canada. March, 2020

Spence, K., T. O'Sullivan, Z. Poljak, and A.L. Greer. Using longitudinal questionnaire data to create networks of horse movements in Ontario, Canada. International Conference on Network Science (NetSci 2018) satellite symposium: Integration of Empirical data in network epidemiology. Paris, France. June 2018. Oral.

Dr. Thomas Koch

Costa L, Dennis D, Hewson J, Koch TG. "Evaluation of cell function and viability of Molday ION™ Rhodamine B labeled equine cord blood mesenchymal stromal cells." Poster presentation by Lisa Costa at the National Veterinary Scholars Symposium 2017.

Roberts E, Dang T, Lepage SIM, Alizadeh HA, Walsh T. Koch TG, Kallos MS. Improved Expansion of Equine Cord Blood Derived Mesenchymal Stromal Cells on Microcarriers in Stirred Suspension Bioreactors. Journal of Biological Engineering J Biol Eng. 2019 Mar 21;13:25. doi: 10.1186/s13036-019-0153-8. eCollection 2019.

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Lepage SIM, Sharma R, Dukoff D, Stalker L, LaMarre J, Koch TG. Gene expression profile is different between intact and enzymatically digested equine articular cartilage. Cartilage. 2019 Mar 6:1947603519833148. doi: 10.1177/1947603519833148.

Lepage SIM, Lee OJ, Koch TG. Equine cord blood mesenchymal stromal cells have greater differentiation and similar immunosuppressive potential to cord tissue mesenchymal stromal cells. Stem Cells Dev. 2019 Feb 1;28(3):227-237. doi: 10.1089/scd.2018.0135. Epub 2019 Jan 14.

Alizadeh AH, Briah R, Villagomez DAF, King WA, Koch TG. Cell identity, proliferation, and cytogenetic assessment of equine umbilical cord blood mesenchymal stromal cells. Stem Cells Dev. 2018 Nov 10. doi: 10.1089/scd.2018.0105.

Dr. Judith Koenig

Alejandro Merchán, Judith Koenig*, Sahar Mehrpoyan, Amir Hamed Haji Alizadeh, Gabrielle Monteith, Nathalie Côté, Thomas Koch (2021).

Lymphocyte populations CD4+ and CD8+ response to repeated intralesional injection of superficial digital flexor tendon core lesions with Allogeneic Equine Cord Blood-Derived Mesenchymal Stromal Cells

ACVS Surgery Summit Meeting October 6-9, 2021 Chicago, Illinois

Evaluation of the significance of arthropathy of the caudal facet joints in horses J Koenig, Amy Westlund, S Nykamp, D Oberbichler, D Kenney, L Melville: ECVS Annual Scientific Meeting 2019, Budapest, Hungary (abstract in Veterinary Surgery August 2019)

Outcome of the evaluation of the significance of arthropathy of the caudal facet joints in horses Amy Westlund, J Koenig, S Nykamp, D Oberbichler, D Kenney, L Melville: CORE @ Ontario Veterinary College, Guelph, Ontario, 2018

Evaluation of the significance of arthropathy of the caudal facet joints in horses. J Koenig, Amy Westlund, S Nykamp, D Oberbichler, D Kenney, L Melville: ACVS Annual Scientific Meeting 2018 (abstract in Veterinary Surgery December 2018)

Dr. Brandon Lillie

Cooper, C. J., Arroyo, L. G., & LILLIE, B. N. (2018). EHV-1 vaginal shedding occurs in healthy broodmares. American Association of Equine Practitioners 64th Annual Convention. Abstract accepted for podium presentation. December.

Arroyo L. G. et al. (2018). Merck Animal Health-Ontario Equine Practitioners CE event. Orangeville, ON. January.

Dr. Katrina Merkies

Merkies K. A match made in heaven: the road to horse and human well-being. International Society for Equitation Science virtual summer meeting. August 2020

Hodder A, Merkies K. Can Ponies (Equus caballus) Distinguish Human Facial Expressions? Animal Behaviour Science Virtual Conference. July 2020

https://www.animalbehaviorsociety.org/virtual/?page=presentation&session_id=51&presentation_id=665

Merkies K. Euthanasia – a difficult decision. OVC Vet Club. Jan 9, 2020

Dr. Jeff Thomason

Asymmetrical limb loading in Thoroughbred racehorses as a possible cause for injury, D. Halucha, W. Sears, J. Thomason. 15th Annual (ISES) Conference, University of Guelph, August 19 - 21, 2020

Dr. Scott Weese

Data presented at OVC Practitioner Night, Dec 14, 2016, and the OAEP Annual Meeting, Feb 2017

Dr. Alex zur Linden

Research presented at ACVR Scientific Conference, October 2018, Fort Worth Texas.

“Ultrasonographic evaluation of three-dimensional printed models of the equine cervical articular process joints.” (A. Beaulieu, A. zur Linden, J. Phillips, G. Monteith, Judith Koenig, Luis Arroyo.

Appendix 8: Presentations and Talks Given by Equine Guelph

Presentations & Talks by Gayle Ecker

September 16, 2021 The Canadian Code of Practice, online presentation, Canadian Therapeutic Riding Association Education Meeting

Presentations & Talks by Susan Raymond

V. MacPherson and S. Raymond, “Large Animal Rescue – Awareness Level Virtual Workshop”, May 13 & 27, 2021, University of Guelph, Guelph, ON – SOLGEN - PAWS offerings

S. Raymond, “Fire Prevention & Emergency Preparedness Workshop”, Undergraduate degree BBRM (EQN 3070), January 28, 2022, University of Guelph, Guelph, ON

S. Raymond, “Fire Prevention and Emergency Preparedness”, Undergraduate degree BBRM (EQN 2150), April 5, 2022, University of Guelph, Guelph, ON

S. Raymond, “What would you do? Large Animal Emergency Rescue Training” OVC Equine Fireside Chat, April 27, 2022, University of Guelph, Guelph, ON

Events and Seminars

Talks and events continued to be restricted for the 2021-22 year.

Appendix 9: Educational Offerings by Equine Guelph

Educational Courses offered by Equine Guelph and Open Learning and Educational Support

Advanced Equine Health through Nutrition (Instructor: Dr. Kathleen Crandell, PhD)

Advanced Equine Behaviour (Instructor: Dr. Robin Foster PhD)

Advanced Functional Anatomy (Instructor: Dr. Jeff Thomason, PhD)

Equine Behaviour (Instructor: Lindsay Nakonechny, MSc and Zoë Thorbergson MSc)

Equine Business Finance and Risk Management (Instructor: Dr. Julie Fischer MBA, D.M.)

Equine Business Management (Instructors: Rachael Hunter MBA & Christine Polhkamp)

Equine Event Management (Instructor: Shelby Pennington)

Equine Genetics (Instructor: Dr. Dianne Winkelman-Sim, PhD)

Equine Nutrition (Instructor: Nicole Weidner, MSc)

Equine Welfare (Instructor: Gayle Ecker, MSc)

Exercise Physiology (Instructor: Dr. Amanda Waller, PhD)

Equine Functional Anatomy (Instructors: Dr. Jeff Thomason, PhD, Dr. Janet Douglas, PhD, Dr. Ev Post, DVM)

Global Perspectives in Equid Welfare (Instructor: Dr. Tamara Tadich, PhD, DVM)

Management of the Broodmare, Stallion and Foal (Instructor: Catherine McMeeking)

Equine Health & Disease Prevention (Instructor: Dr. Ev Post, DVM)

Management of the Equine Environment (Instructors: Dr. Susan Raymond, PhD & Kathy Fremes)

Marketing & Communications (Instructor: Tracy Dopko)

Stewardship of the Equine Environment (Instructor: Dr. Susan Raymond, PhD)

The Equine Industry (Instructor: Gayle Ecker, MSc)

Equine Journalism: (Emily Esterson, MFA) PhD

Short Online courses (13) offered by Equine Guelph on TheHorsePortal.ca

Equine Business 101 (On-Demand)

Equine First Aid (Instructor: Dr. Laura Frost, DVM)

Fire and Emergency Preparedness (Instructor: Dr. Susan Raymond, PhD)

Gut Health and Colic (Instructor: Nicole Weidner, MSc)

Horse Behaviour and Safety (Instructor: Dr. Susan Raymond, PhD)

Horse Behaviour and Safety for Youth (On-Demand)

Horse Care and Welfare (Instructor: Gayle Ecker, MSc)

Introduction to Forage (Instructor: Dr. Paul Sharpe, PhD)

Racehorse Lameness & Injury Prevention and Care (Instructor: Dr. Melissa McKee, DVM)

Racehorse Respiratory Health (Instructors: Drs. Sarah Shaw and Amy Lack, DVM)

Racehorse Gut Health & Colic Prevention (Instructor: Nicole Weidner, MSc)

Sickness Prevention (Instructor: Dr. Susan Raymond, PhD)

Sport Horse Lameness & Injury Prevention and Care (Instructor: Dr. Bri Henderson, DVM)

Appendix 10: Summary of the Equine Studies program

Diploma in Equine Studies

The diploma in equine studies requires 6 core and 4 elective courses. We are seeing an increase in students beginning the program with the intent to complete the Diploma in Equine Studies. In 2009 we awarded our first Diploma in Equine Studies. With 23 diplomas awarded in 2021/22, the total number of diplomas awarded has increased to 369.

Program Requirements:

Management of the Equine Environment	Core
Health & Disease Prevention	Core
Equine Nutrition	Core
Functional Anatomy	Core
Equine Behaviour	Core
Stewardship of the Equine Environment	Core

Students can continue with electives from the Equine Science specialty

Growth & Development	Elective
Exercise Physiology	Elective
Equine Genetics	Elective

and/or combine Equine Business Management courses

Equine Business Management	Elective
Marketing & Communications in the Equine Industry	Elective
Finance & Risk Management	Elective
The Equine Industry	Elective
Equine Journalism	Elective
Equine Event Management	Elective

and/or combine Equine Welfare course

Equine Welfare	Elective
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Equine Science Certificate

The Equine Science Certificate requires 4 core and 2 elective courses. The first Equine Science Certificates were awarded in 2004/05 to 36 students. With 13 Equine Science Certificates awarded in 2021/22, to date 480 Equine Science Certificates have been awarded.

Program Requirements:

Management of the Equine Environment	Core
Health & Disease Prevention	Core
Equine Nutrition	Core
Functional Anatomy	Core
Growth & Development	Elective
Equine Behaviour	Elective
Exercise Physiology	Elective
Equine Genetics	Elective

Certificate in Equine Business Management

The Certificate in Equine Business Management requires 5 core and 1 elective course. With 2 Certificates in Equine Business Management awarded in 2021/22, to date 87 Equine Business Management Certificates have been awarded.

Program Requirements:

Management of the Equine Environment	Core
Equine Business Management	Core
Marketing & Communications in the Equine Industry	Core
Finance & Risk Management	Core
The Equine Industry	Core
Equine Journalism	Elective
Equine Event Management	Elective
Stewardship of the Equine Environment	Elective

Equine Welfare Certificate

The Equine Welfare Certificate requires 3 pre-requisite courses, 4 core and 2 elective courses. The Equine Welfare Certificate is a partnership between Equine Guelph, Campbell Centre for the Study of Animal Welfare and Open Learning and Educational Support. With 4 Certificates in Equine Welfare awarded in 2021/22, to date 32 Equine Welfare Certificates have been awarded.

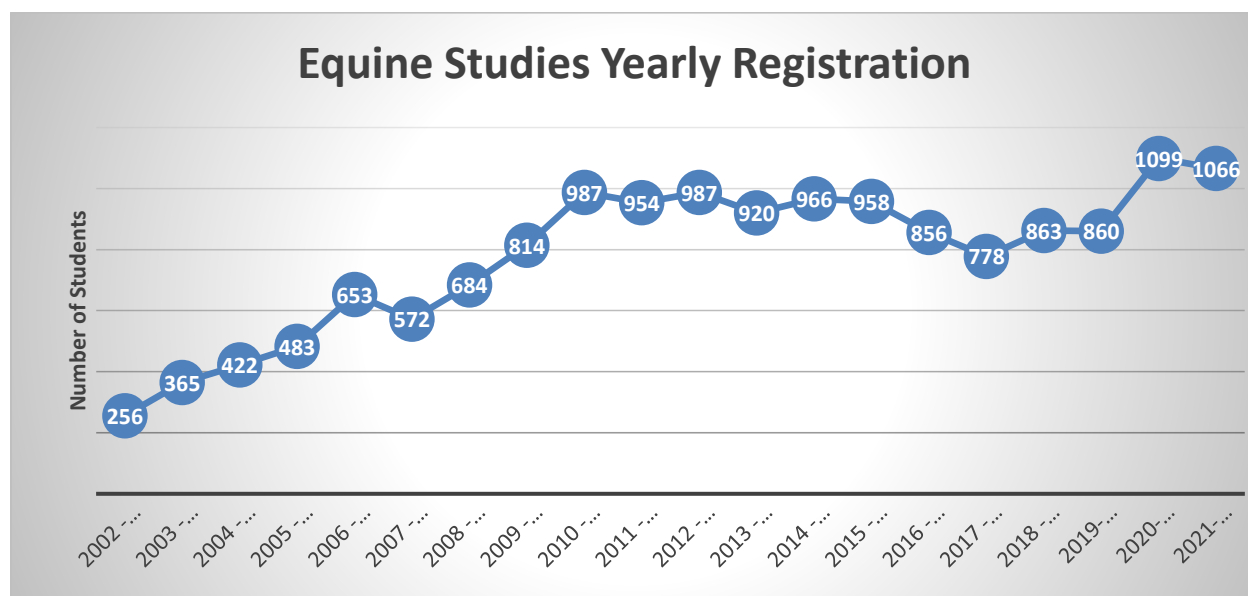
Program Requirements:

Management of the Equine Environment	Pre-requisite
Equine Behaviour	Pre-requisite
Course of your choice from Equine Science or Business	Pre-requisite
Equine Welfare	Core
Advanced Equine Behaviour	Core
Advanced Equine Health through Nutrition OR Equine Nutrition	Core
Global Perspectives in Animal and Equine Welfare	Core
Health & Disease Prevention	Elective
The Equine Industry	Elective
Equine Nutrition OR Advanced Equine Health Through Nutrition	Elective
Advanced Equine Anatomy	Elective

2021 – 2022 Student Registration Profile

New students	327
Number of individual students	706
Total number of registrations	1066

Equine Yearly Student Registration Summary



Yearly Student Registration All Programs and Courses

Year	# of reg	Projections	# of Students
2002 - 2003	256	180	
2003 - 2004	365	360	
2004 - 2005	422	480	
2005 - 2006	483	540	
2006 - 2007	653	760	
2007 - 2008	572	600	
2008 - 2009	684	710	
2009 - 2010	814	888	
2010 - 2011	987	1009	503
2011 - 2012	954	949	524
2012 - 2013	987	1125	487
2013 - 2014	920	1110	503
2014 - 2015	966	995	516
2015 - 2016	958	975	530
2016 - 2017	856	975	540
2017 - 2018	778	900	545
2018 - 2019	863	920	562
2019 - 2020	860	920	516
2020-2021	1099	1000	607
2021-2022	1066	1000	707

New Student by Semester	
S21	107
F21	115
W22	105

Enrollment Registrations by Course 2021-2022

Summer 2021

2200000	Management of the Equine Environment	60
2200001	Equine Exercise Physiology	48
2200002	Equine Behaviour	34
2200004	Equine Health and Disease Prevention	42
2200006	Equine Nutrition	62
2200012	Equine Business Finance and Risk Management	38
2200013	Equine Welfare	34

Fall 2021

2200000	Management of the Equine Environment	62
2200004	Equine Health and Disease Prevention	62
2200005	Equine Functional Anatomy	62
2200007	Equine Journalism	30
2200010	Stewardship of the Equine Environment	63
2200015	Advanced Equine Behaviour	13
2200018	Management of the Broodmare, Stallion and Foal	44
2210002	Equine Business Management	49

Winter 2022

2200000	Management of the Equine Environment	65
2200002	Equine Behaviour	65
2200004	Equine Health and Disease Prevention	51
2200006	Equine Nutrition	64
2200008	Equine Genetics	43
2200011	The Equine Industry	30
2200017	Global Perspectives in Equine Welfare	11
2240000	Marketing & Communications in Equine Industry	34
Total Enrollments		1066

Advanced Courses

Course	Semester	# of reg
Advanced Equine Behaviour	F21	13
Advanced Equine Health through Nutrition	N/A	0
	Total	13

Equine Welfare Certificate Courses

The Equine Welfare Certificate is a partnership between Equine Guelph, Campbell Centre for the Study of Animal Welfare and Open Learning and Educational Support.

Course	Semester	# of reg
Global Perspectives in Equine Welfare	W22	11
Equine Welfare	S21	34
	Total	45

Course Distribution

Number of courses offered each year

Year	Courses
2002 - 2003	4
2003 - 2004	6
2004 - 2005	8
2005 - 2006	9
2006 - 2007	13
2007 - 2008	10
2008 - 2009	12
2009 - 2010	16
2010 - 2011	19
2011 - 2012	21
2012 - 2013	24
2013 - 2014	21
2014 - 2015	22
2015 - 2016	22
2016 - 2017	23
2017 - 2018	21
2018 - 2019	26
2019 - 2020	22
2020 - 2021	22
2021-2022	23

Different individual courses available

Year	Courses
2002 - 2003	3
2003 - 2004	4
2004 - 2005	6
2005 - 2006	7
2006 - 2007	8
2007 - 2008	7
2008 - 2009	11
2009 - 2010	14
2010 - 2011	15
2011 - 2012	17
2012 - 2013	19
2013 - 2014	16
2014 - 2015	17
2015 - 2016	17
2016 - 2017	18
2017 - 2018	16
2018 - 2019	17
2019 - 2020	14
2020 - 2021	17
2021 - 2022	17

Where are our students coming from?

Canadian Students

Student numbers	
AB	86
BC	90
MB	15
NB	16
NL	5
NS	15
NU	0
NT	1
ON	272
PE	7
QC	60
SK	5
YT	1
TOTAL	573

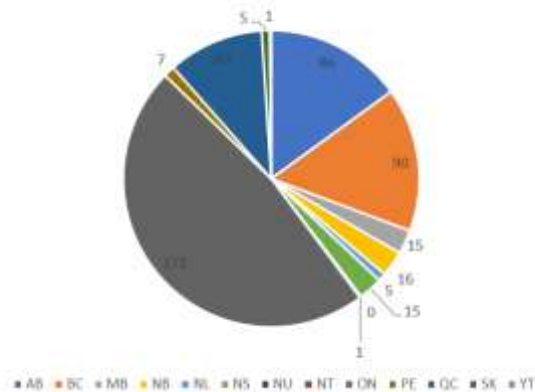
International Students

Student numbers	
Australia	8
Austria	1
Belgium	0
Costa Rica.	1
Columbia	2
Denmark	2
Ecuador	0
Egypt	0
France	0
Finland	2
Germany	2
India	1
Kazakhstan	0
Mexico	1
Netherlands	1
New Zealand	1
Portugal	1
Qatar	0
Russia	1
Saudi Arabia	1
South Africa	6
Spain	1
Switzerland	0
Taiwan	1
UAE	7
UK	1
TOTAL	40

US Students

Student Numbers	
AK	1
AL	1
AZ	1
CA	10
CO	9
DC	1
FL	3
GA	1
IA	1
IL	3
IN	1
KS	1
MA	2
MI	6
MO	3
MT	1
ND	1
NC	2
NH	2
NJ	2
NV	2
NY	4
OH	2
OK	1
OR	3
PA	5
SC	1
SD	1
TN	1
TX	4
UT	2
VA	6
VT	1
WA	4
WI	3
TOTAL	93

Canadian Student Distribution by Province



Year to Year Comparison by student geographic location

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
CAN	459	442	461	451	424	428	428	387	469	573
US	31	54	38	44	56	40	40	94	88	93
INT	13	20	23	45	45	80	94	50	50	40
	503	516	522	540	525	548	562	572	607	706

Year by Year Comparison of the geographic location of Canadian Students

	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22
AB	49	54	48	49	48	61	50	58	46	79	86
BC	48	64	63	66	70	60	67	70	49	68	90
MB	13	10	4	7	14	10	11	13	7	9	15
NB	8	7	5	4	6	9	8	10	10	10	16
NF	2	3	4	4	7	4	6	4	3	3	5
NS	10	15	18	16	13	7	11	11	13	17	15
NU	1	0	0	0	0	0	0	0	0	0	0
NT	0	0	3	3	1	0	2	2	2	2	1
ON	296	275	259	275	249	229	223	208	221	231	272
PI	0	4	3	1	2	0	2	2	3	7	7
PQ	18	12	21	20	22	29	30	32	29	37	60
SK	6	14	14	16	17	15	13	18	4	6	5
YT	0	1	0	0	2	0	2	0	0	0	1
	451	459	442	461	451	424	425	428	387	469	573

Graduates of our Certificates and Diploma Program of Studies

	ESC	CEBM	DipES	WEL
2004/05	36	n/a	n/a	n/a
2005/06	27	n/a	n/a	n/a
2006/07	32	n/a	n/a	n/a
2007/08	25	n/a	n/a	n/a
2008/09	38	n/a	n/a	n/a
2009/10	20	n/a	22	n/a
2010/11	30	2	13	n/a
2011/12	30	6	23	n/a
2012/13	28	7	29	n/a
2013/14	19	9	25	n/a
2014/15	21	6	20	n/a
2015/16	50	14	38	3
2016/17	27	6	34	3
2017/18	15	8	29	4
2018/19	20	10	27	8
2019/20	31	13	49	7
2020/21	18	4	37	3
2021/2022	13	2	234	
	480	87	369	32

ESC - Equine Science Certificate	
CEBM - Certificate in Equine Business Management	
DipES - Equine Studies Diploma	
WEL - Certificate in Equine Welfare	

The Horse Portal 2021 – 2022

Course Offering Overview 2021-2022

Course	Enrollment Total	Enrollment PTSO	# Paid Students	% Paid Enrollment	Revenue
Equine First Aid – S21	79	5	71	90%	\$6,845.00
Fire and Emerg. Preparedness - S21*	81	2	42	52%	\$4,811.00
Horse Care and Welfare F21	70	33	70	100%	\$6,122.75
Sickness Prevention in Horses F21	51	22	51	100%	\$4,300.89
Equine First Aid - F21*	92	16	61	66%	\$6,166.23
Behaviour and Safety F21	33	10	33	100%	\$2,935.35
Fire and Emerg. Preparedness - F21*	44	N/A	N/A	13%	\$1,380.75
Gut Health and Colic Prev. W22*	51	10	48	94%	\$5,435.50
Racehorse Respiratory Health - W22**	90	N/A	11	12%	\$959.50
Racehorse Gut Health & Colic - W22**	73	1	0	0%	\$0.00
Equine First Aid - W22*	61	9	54	89%	\$5,450.16
Lameness/Injury Prev. for Racing W22**	121	N/A	9	7%	\$579.50
Fire and Emerg. Preparedness - W22*	42	6	15	36%	\$1,580.75
Introduction to Forage - W22*	94	25	59	63%	\$5,169.17
Sport Horse Lameness/Injury - S22	82	43	81	99%	\$6,982.25
Equine Business 101 - On Demand**	1166	97	40	3%	\$1,640.00

Horse Behaviour & Safety for Youth – On Demand**	587	10	43	7%	\$1,100.00
Total	2817	289	688	55%	\$61,458.80

*Course offered as part of a "buy-one-get-one-half-off" package deal or BOGO deal

**Course registrations available for free with use of coupon, through partnership with sponsor

Course Enrollment Stats

Year	Total Enrollment	Federation Enrollment	% Federation Enrollment
2016-2017	58	35	60%
2017-2018	434	207	48%
2018-2019	681	333	49%
2019-2020	1153	155	13%
2020-2021	1626	182	11%
2021-2022	2817	289	10%

Provincial Breakdown

PTSO	Registered Students – 2021-22
Alberta (AEF)	22
British Columbia (HCBC)	30
Manitoba (MCH)	7
New Brunswick (NBEA)	13
Newfoundland (NEA)	3
Nova Scotia (NSEF)	25
Ontario (OE)	184
Prince Edward Island (IHC)	1
Saskatchewan (SHF)	2
Yukon (EAY)	2
Totals	289
% of Registrations:	10%

What our students are saying

I did not know many of the issues discussed during the Stewardship of the Equine Environment even existed. I wish I had taken the course earlier (if not first) in my Equine Diploma Studies, as I feel it gives a great basis for all the other courses. Although the Equine Guelph Courses are complete in themselves, I have found that many of the courses dovetail into each other, one course may just touch on a subject introducing it, and then later in another course that same information (which has been already introduced) will lead to an in-depth discussion on it.
Jennifer Olley.

The Equine Business Management course has given me the tools to start an equine business, with a solid understanding of the requirements and a business plan to use. Analyzing the costs



beforehand, during operation, and projecting income really opened my eyes to what was needed to be successful and profitable. This course is so thorough in dissecting all the details – market research to financials to the human resources side. My focus during the course was on opening a boarding facility; I can use the principles I learned to open any type of equine venture.
Monica Laane-Fralick

Completing a Diploma in Equine Studies through the University of Guelph allowed me to remain on our family farm in Saskatchewan while furthering my knowledge regarding the welfare and care of

horses. The knowledge I gained through this program has assisted me in personal and professional environments. I am thankful that I now have the skill set and confidence to make sound decisions for the horses in my care.

Erin van Stuyvenberg Grenfell, Saskatchewan.

It has been a great journey, from a first horse to a commercial breeding operation. And I learned what I needed through Guelph online, without leaving home or my horse. Thank you for your part in the offering of these courses. Everyone provided a piece that I needed along with many other details that have turned out to be quite useful. I'm sure we have saved money, time and injury through my online study.

Laureen at Bar TT Cowhorse

This has been absolutely the best class I have taken online! I've taught and taken courses online over many years. This course far outweighs all of them not only in ease of online access but, most importantly, in content. Thank you!

Gail Staines, Management of the Equine Environment Course Participant

Appendix 11: Equine Guelph's Promotional Events

Covid did not stop the messages of education, lifelong learning, career pathways, safety and horse welfare. Equine Guelph reached out to the equine community with numerous virtual events.

Displays and Events for Equine Guelph programs

Events Calendar – 2021

Large Animal Rescue Training webinar May 13 2021

Large Animal Rescue Training webinar May 27, 2021

Livestock Emergency Response Webinar June 3

Royal Virtual Summer Session June 15 – 16

Taking Science to the Stable webinar: Broodmare Management and Nutrition with Don Kapper
June 16

Taking Science to the Stable webinar: What's Next? How to restart your business after a
shutdown – Panel Presentation, June 30

Livestock Emergency Response Webinar July 22

Taking Science to the Stable webinar: Routine equine handling using low stress and
cooperative care techniques – Dr. Robin Foster , July 28

Taking Science to the Stable webinar: Foal Management and Nutrition of Newborn, Suckling,
Growing and Orphan Foals – Don Kapper, Aug 11

Taking Science to the Stable webinar: Turning Science into Stories for Horse Owners – Emily
Esterson, August 18

Taking Science to the Stable webinar: Performance Nutrition – Feeding and Management of the
Performance Horse – Don Kapper, Aug 25

Best Horse Practices Summit – Lexington, KY October 29 – 31

Large Animal Rescue-Awareness Level Workshop – CNE grounds Nov 3, 2021

Large Animal Rescue-Awareness Level Workshop – CNE grounds Nov 10, 2021

Equine Industry Symposium, University of Guelph Online Conference Taking the Reins! Exciting
Equine Opportunities. November 22-24, 2021

Events Calendar – 2022

Large Animal Emergency Rescue Training workshop - Ancaster Fairgrounds March 30

Large Animal Emergency Rescue Training Program feature presentation - OVC's Equine
Fireside Chat April 27

Appendix 12: Media Coverage Summary

Topic	Articles (May 1, 2021-April 30, 2022)
Research	86
Education	173
Special Projects	112

Coverage of Special Events, Programs or Research Projects

Topic	Articles (May 1, 2021- April 30, 2022)
TheHorsePortal.ca courses	74
AGCO Racing Pilot Program	34
Ontario Equine Education and Employment Program	25
Equine Asthma	21
Free Horse Behavior for Youth	18
Colic Prevention	17
Donation from Grand River Ag	14
Senior Horse tool	13
Thoracic Asymmetry Research	12
Large Animal Emergency Rescue	11
Business 101 offering	11
Webinars EG instructors	11
EHV-1 Research	10

Total Features: 371

Equine Guelph's media pick up is up 10% from last year. Additionally, there was an uptake in a number of high-quality industry news distributors. The discerning audience currently following Equine Guelph's releases and re-publishing them include national and provincial equine associations, veterinary practices, equestrian media outlets, racing associations, feed companies, insurance companies, newspaper companies, stable owners and industry professionals. The engagement of this audience results in further reach to the industry in Ontario and beyond. 100% of the 40 media releases sent out by Equine Guelph this fiscal year were picked up for further distribution. Equine Guelph's releases are distributed to a media list of over 160 equine media outlets!

Equine Guelph continues to maintain a presence on many social media platforms including Facebook, Twitter, LinkedIn, Instagram and YouTube. Followers include: many equine media associations (locally and around the globe), Woodbine Entertainment Group, Canadian Horse Racing News, AGCO Racing, Ontario Racing, many raceways, racing fans, many Canadian and Ontario Fire Departments, horse trainers, therapeutic riding academies, breed organizations, saddle fitters, rescue and rehoming facilities, equine trade shows, EquiMed, the Royal Agricultural Winter Fair, American Farriers Journal, Tack shops, AAEP American Association of Equine Practitioners, OAVT Ontario Association of Veterinary Technicians, The College of Veterinarians of Ontario, Ontario Veterinary Medical Association and Canadian Vet Medical Association. Equine Guelph sent out 349 tweets garnering 100,182 impressions.

Equine Guelph shared 386 posts on Facebook resulting in a collective reach of 307,757. Equine Guelph's Facebook reach has nearly tripled with the launch of our new Equine Facilities Management Certificate and Ontario Equine Education and Employment Program. Our most engaging post announced the launch of the Equine Business 101 online on-demand course offered for FREE from Jun 21 – Sep 20. Announcement of the 2021 tuition award winners for the racing industry (Roger L'Heureux Memorial Equine Award and the Stuart Stocks Memorial Equine Award) was another post with very high engagement.

Of the traffic to visit the Equine Guelph and Horse Portal websites from social media channels, 90% came from Facebook.

In early 2017, Equine Guelph launched The Horse Portal, partnering with 10 provincial equestrian federations and Equestrian Canada (Canada's national equine association). Articles and news pertaining to The Horse Portal continue to be very popular. The launch of the Racing Pilot program in 2019, created in partnership with the Alcohol and Gaming Corporation of Ontario (AGCO) continues to receive exceptional distribution by racing media outlets. In 2021, the course offerings from this project were among our most redistributed press releases!

Many links to pages of Equine Guelph's website continue to be developed by a variety of industry groups including educational websites, provincial equine associations and veterinary pages, student graduates of our program and many of our sponsors. Equine Guelph's membership with American Horse Publications (AHP) results in a much wider audience as 2 media articles per month are distributed to a broad list of U.S. equine publications.

Media Coverage List

Date	Magazine or Website	Article Title
21-May	The Rider	Coughing? The Time to Take Action is Now!
21-May	Saddle Up Magazine	Coughing? The Time to Take Action is Now!
21-May	The Rider	Equine Guelph Offers New Industry Certificate
21-May	StandardbredCanada.ca	Emergency Course Starts May 17 (Fire & Emergency Preparedness)
21-May	PaulickReport.com	Free, Online Equine Facility Management Certificate Available
21-May	EquusMagazine.com	Guelph offers free Equine Business 101 course for a limited time
21-May	HorseTalk.co.nz	Free course on the business of horse operations
21-May	HorseJournals.com	Colic Prevention - Introduce Spring Pasture Slowly
21-May	HorseJournals.com	Dr. Tracy Chenier - Getting Mare & Stallion Ready for Breeding. (Research Radio YouTube podcast)
21-May	HorseJournals.com	Podcast - Early Pregnancy Loss in Mares - Equine Guelph. (Dr. Keith Betteridge)
21-May	HorseJournals.com	Podcast - Interview with Gayle Ecker, Equine Guelph
21-May	HorseJournals.com	Do Equestrians Know How Their Horses Learn?
21-May	The Hoofbeat Eblast from HorseJournals	Podcast - Rhodococcus Equine Bacteria. (Dr. Prescott)
21-May	The Hoofbeat Eblast from HorseJournals	Podcast - Early Pregnancy Loss in Mares - Equine Guelph. (Dr. Keith Betteridge)
21-May	The Hoofbeat Eblast from HorseJournals	Podcast - Interview with Gayle Ecker, Equine Guelph
21-May	CosaOnline.com	Last Call Fire and Emergency Preparedness
21-May	AmericanHorsePubs.org	FREE Equine Business 101 Course for a Limited Time!
21-May	ManitobaHorseCouncil.ca	Horse Portal Courses 2021
21-May	OntarioEquestrian.ca	Equine Guelph Horse Portal
21-May	NBEA.ca	Equine Guelph Horse Portal, Equine JobTrack & EquiMania!(New Brunswick Equestrian Association website)
21-May	HorseNovaScotia.ca	Equine Guelph courses incl Horse Portal, & EquiMania!(Nova Scotia Equestrian Association website)

21-May	HorseNovaScotia.ca	Equine Guelph Biosecurity Resources
21-Jun	AmericanHorsePubs.org	Equine Asthma and Pollution
21-Jun	AGCO.ca	Equine Guelph Horse Portal Courses - Equine Emergency Preparedness Certificate ...
21-Jun	AmericanHorsePubs.org	Free Equine Webinar Series: Taking Science to the Stable
21-Jun	The Hoofbeat Eblast from HorseJournals	FREE Equine Business 101 Course for a Limited Time!
21-Jun	HorseJournals.com	FREE Equine Business 101 Course for a Limited Time!
21-Jun	HorseTalk.co.nz	Researcher delves into pollution's effect on equine asthma
21-Jun	HorseTalk.co.nz	Broodmare nutrition kicks off summer equine webinar series
21-Jun	EverythingHorseUK.co.uk	Free Equine Webinar Series: Taking Science to the Stable
21-Jun	StableManagement.com	Free Equine Guelph Webinar Series: Taking Science to the Stable
21-Jun	ISSUU.com	Equine Guelph Webinar Series
21-Jun	OVC Bulletin	Free Equine Webinar Series: From Open Ed and Equine Guelph: Taking Science to the Stable
21-Jun	TheRider.com	Equine Asthma and Pollution
21-Jun	TheRider.com	Free Equine Business 101 Course for a limited time
21-Jun	HorseJournals.com	Equine Robo-Gut Helps OVC Researchers Study Gastrointestinal Diseases In Horses
21-Jun	HorseJournals.com	Podcast - Spread of Infections Disease at Horse Shows
21-Jun	HorseJournals.com	How to get Ticked Off
21-Jun	TheHoofbeat Enews by HorseJournals	How to get Ticked Off
21-Jun	TheHoofbeat Enews by HorseJournals	Podcast - Spread of Infections Disease at Horse Shows
21-Jun	TheHoofbeat Enews by HorseJournals	When the Rider is Hot, the Horse is Hotter
21-Jun	TheHoofbeat Enews by HorseJournals	Getting Mare & Stallion Ready for Breeding. (Chenier podcast)
21-Jun	TheHoofbeat Enews by HorseJournals	Equine Asthma and Pollution. (article)
21-Jun	HorseNation.com	Equine Asthma and Pollution
22-Jun	EquineChronicle.com	Free Equine Business 101 Course for a Limited Time
21-Jun	StandardbredCanada.ca	Equine Asthma and Pollution

21-Jun	EquineScienceUpdate	"RoboGut" to study horse's gut microbiome
21-Jun	EquineScienceUpdate	Taking Science to the Stable - Free Equine Webinar Series
21-Jun	HolisticHorse.com	Taking Science to the Stable - Free Equine Webinar Series
21-Jun	Race Line	Equine Guelph Horse Portal Courses - Equine Emergency Preparedness Certificate & Business 101
21-Jun	EquiMed.com	Equine Asthma and Pollution
21-Jul	HorseJournals.com	Finding the Hoof Care Balance
21-Jul	HorseJournals.com	Equine Asthma and Pollution. (article)
21-Jul	HorseJournals.com	The Impact of Pollution on Equine Health. (video)
21-Jul	OVC.uoguelph.ca/news	OVC Researchers Study Impact of Smog on Horse Lung Health. (link to EG article and video)
21-Jul	NickerNews.net	What to do about Ticks, Business course, EG July Enews link
21-Jul	NickerNews.net	101 Ebook
21-Jul	BestHorsePractices.com	Podcast - Pros and Cons of Grooming with Robin Foster (EG Adv. Behaviour instructor)
21-Jul	OVC Bulletin	TAKING SCIENCE TO THE STABLE WEBINAR: Foal Management and Nutrition of Newborn
21-Jul	Horse Media Group	Horse of the Week Enews- In the News section: Dr. Arroyo on ticks.
21-Jul	Knowledge.Aidr.org.au	Large animal rescue and livestock emergency response training best practices (EG LAER courses mentioned)
21-Jul	Australian Journal of Emergency Management	Large animal rescue and livestock emergency response training best practices (EG LAER courses mentioned)
21-Jul	NickerNews.net	Equine Guelph partners with Best Horse Practices Summit
21-Jul	EquiMed.com	Equine Guelph partners with Best Horse Practices Summit for 4th Annual Summit
21-Jul	HarnessLink.com	Equine Journalism online course
21-Jul	HorseSport.com	Equine Journalism Course Offered at Equine Guelph
21-Jul	HorseNation.com	What to do About Ticks
21-Jul	StandardbredCanada.ca	Prevent Being Ticked Off
21-Jul	HorseTalk.co.nz	Horses 101: Free ebook gives a wealth of information
21-Jul	HorseTalk.co.nz	Free webinar on nutrition and care of foals

21-Jul	HorseTalk.co.nz	Increasing tick populations a cause for concern for horse owners
21-Jul	HorseJournals.com	Hot Weather Horse Care (links to EG resources)
21-Jul	TheRider.com	Newly Redeveloped Equine Journalism Course Launches This Fall (in email and magazine)
21-Jul	TheRider.com	Horses 101 Ebook from Equine Guelph
21-Jul	TheRider.com	Equine Robogut Helps OVC Researchers Study Gastrointestinal Disease in Horses
21-Jul	HorseJournals.com	Equine Guelph partners with Best Horse Practices Summit
21-Jul	HorseJournals.com	What to do About Ticks
21-Jul	HorseJournals.com	Horses 101 Ebook from Equine Guelph
21-Jul	HorseJournals.com	Podcast: Spread of Infectious Disease at Horse Shows (Spence Research Radio)
21-Jul	Saddle Up Magazine	Taking Science to the Stable (webinar series)
21-Jul	CosaOnline.com	Prevent Being Ticked Off
21-Jul	AmericanHorsePubs.org	Equine Guelph Partners with Best Horse Practices for Fourth Annual Summit
21-Jul	AmericanHorsePubs.org	Emily Esterson Joins OpenEd as Instructor for Redeveloped Equine Journalism Course
21-Aug	AmericanHorsePubs.org	Horses 101 Book from Equine Guelph
21-Aug	AmericanHorsePubs.org	Don't Let Dust Diminish Your Horse
21-Aug	HorseCanada.ca	Don't Let Dust Diminish Your Horse
21-Aug	HorseTalk.co.nz	Three-pronged attack aims to help critically ill horses and foals
21-Aug	HorseTalk.co.nz	On Demand Equine Business Course Offered for Free
21-Aug	HorseTalk.co.nz	National honour for Canadian equine veterinary researcher
21-Aug	TheRider.com	Don't Let Dust Diminish Your Horse
21-Aug	TheRider.com	New Equine Business 101 a Hit!
21-Aug	TheRider.com	Equine Guelph Partners with Best Horse Practices Summit for 4th Annual Summit
21-Aug	TheRider.com	Emily Esterton Joins Open Ed as Instructor for Redeveloped Equine Journalism Course
21-Aug	StandardbredCanada.ca	Equine Guelph Offers Business Course
21-Aug	StandardbredCanada.ca	Don't Let Dust Diminish Your Horse
21-Aug	EverythingHorseUK.co.uk	How to avoid equine asthma and respiratory issues with barn management
21-Aug	CosaOnline.com	Equine Guelph Offers Business Course
21-Aug	CosaOnline.com	Don't Let Dust Diminish Your Horse

21-Aug	AmericanHorsePubs.org	Journalism Ethics Matters and Why (EG mention in Esterton's credentials)
21-Sep	StandardbredCanada.ca	Are Most Horses Lefties?
21-Sep	HorseNation.com	Preventing Fall and Winter Colic
21-Sep	Horse-Canada.com	TLC for Older Horses (and a Quiz to Test Your Senior Savvy)
21-Sep	CosaOnline.com	Horse Care & Welfare Course Kicks Off Fall Equine Guelph Schedule
21-Sep	EquineChronicle.com	Don't Let Dust Diminish Your Horse
21-Sep	ASHA.AB.ca	How to become a caretaker (groom)
21-Sep	ASHA.AB.ca	Last Call for Horse Care and Welfare course
21-Sep	Horse-Canada.com	Are Most Horses Lefties?
21-Sep	ASHA.AB.ca	National Care Taker Appreciation Day - EG courses for grooms mentioned
21-Sep	ARIA Riding-instructor.com	Don't Let Dust Diminish Your Horse
21-Sep	StandardbredCanada.ca	Horse Care & Welfare Course Kicks Off Fall Equine Guelph Schedule
21-Sep	StandardbredCanada.ca	Last Call for Horse Care and Welfare Course
21-Sep	StandardbredCanada.ca	TLC for our Senior Horses
21-Sep	NickerNews.net	TLC for our Senior Horses
21-Sep	PaulickReport.com	Study: Majority of Horses Considered 'Lefties'
21-Sep	HorseJournals.com	Podcast - Innovative Research on Equine Lameness (Hurtig Video)
21-Sep	EquiMed.com	Equine Guelph Goes All Out for Senior Horses with Its Tool of the Month
21-Sep	EquineScienceUpdate.blogspot.com	Thoracic asymmetry in ridden horses
21-Sep	Horse-Canada.com	Managing Rising Costs of Vet Care (EG mention of courses - Educate Yourself!)
21-Sep	EverythingHorseUK.co.uk	Saddle Fitting: Are most horse's lefties?
21-Sep	HolisticHorse.com	Are most horse's lefties?
21-Sep	HorseTalk.co.nz	Most horses "lefties", saddle fit and wither symmetry review finds
21-Sep	CosaOnline.com	Last call for the Horse Care & Welfare short course
21-Sep	AmericanHorsePubs.org	TLC for our Senior Horses!
21-Sep	AmericanHorsePubs.org	Over 1,000 Registered in New Equine Business 101 Online Course
21-Oct	AmericanHorsePubs.org	Are Most Horses Lefties?
21-Oct	AmericanHorsePubs.org	Recent UofG Grad Joins Research to Improve Survival of Horses with Diarrhea and Critically Ill Foals
21-Oct	CosaOnline.com	Sign Up For Sickness Prevention In Horses

21-Oct	HorseJournals.com	Barn on Fire (with 2 EG archived articles)
21-Oct	HolisticHorse.com	TLC for our Senior Horses
21-Oct	TheRider.com	TLC for our Senior Horses
21-Oct	TheRider.com	Are Most Horses Lefties?
21-Oct	TheRider.com	Recent UofG Grad Joins Research to Improve Survival of Horses with Diarrhea and Critically Ill Foals
21-Oct	TheRider.com	Over 1,000 Registered in New Equine Business 101 online course
21-Oct	StandardbredCanada.ca	Sign up for Sickness Prevention Course
21-Oct	StandardbredCanada.ca	Last Call for Equine Guelph's Sickness Prevention Course
21-Oct	StandardbredCanada.ca	Registration Open For Equine First Aid
21-Oct	RoyalFair.org	Free For Youth - Horse Behaviour and Safety Course
21-Oct	HorseJournals.com	Thoracic Asymmetries and the Relationship with Saddle Fit
21-Oct	HorseJournals.com	Equine Health Vaccination Mini-Survey from Equine Guelph
21-Oct	HorseJournals.com	Podcast - Gut Function and Horses with Dr. Scott Weese (archived Research Radio)
21-Oct	HorseJournals.com	Let's Talk Mud
21-Oct	HorseJournals.com	11 Reasons for Not Wearing a Riding Helmet
21-Oct	SystemEquine.com	System Equine Oct 28 Email - Fall HEALTHflash by EG
21-Oct	ARIA - American Riding Instructor Association	Are Most Horses Lefties?
21-Oct	StandardbredCanada.ca	Racing Scholarship Applications Open
21-Oct	CosaOnline.com	Racing Scholarship Applications Open
21-Oct	HBPA.on.ca	Apply Now for 2021 Racing Industry Scholarships
21-Oct	CanadianThoroughbred.com	Two 2021 Racing Industry Scholarships Available
21-Oct	CosaOnline.com	Registration For Equine First Aid Now Open
21-Oct	CayuseCommunications.com	Do you know what tools to use to keep your senior horse healthy and happy? Equine Guelph does!
21-Nov	AmericanHorsePubs.org	Free Online Youth Course on Horse Behavior and Safety Returns!
21-Nov	HBPA.on.ca	Free Online Youth Course on Horse Behavior and Safety Returns!
21-Nov	CosaOnline.com	Last Call To Register For Equine First Aid
21-Nov	CosaOnline.com	Attention Horse Crazy Teens!
21-Nov	CosaOnline.com	Equine Symposium Set To Return

21-Nov	StandardbredCanada.ca	Register for Fire and Emergency Preparedness
21-Nov	StandardbredCanada.ca	Last Call for Equine First Aid
21-Nov	StandardbredCanada.ca	Last Call To Register For Horse Behaviour & Safety
21-Nov	Blaze Magazine	Free Online Youth Course
21-Nov	HarnessLink.com	Free Online Youth Course
21-Nov	HorseSafetyTips.com	Thoughts on a Horse Safety Course for Youth
21-Nov	HorseTalk.co.nz	Free Equine Behaviour course for Horse Crazy Teens
21-Nov	HorseTalk.co.nz	Three-day symposium looks at inclusivity, social license in the horse world
21-Nov	RoyalFair.org	Starts Today! (Youth Horse Behaviour & Safety)
21-Nov	CosaOnline.com	Last Call To Register For Horse Behaviour & Safety
21-Nov	CosaOnline.com	Why is this horse rolling in sand? (Horse Behaviour course)
21-Nov	BestHorseSummitPractices.org	Closing Remarks Best Horse Practices Summit (EG sponsor mention)
21-Nov	Horse-Canada.com	Equine Guelph Hold Hands-On Workshops for Toronto Mounted Police
21-Nov	HorseJournals.com	Wildfire, Flood, Earthquake... (EG mention of Large Animal Emergency Rescue course)
21-Nov	HorseJournals.com	Online Education for Horse Owners - Opportunities Abound (Capri Article mentions EG courses)
21-Nov	HorseJournals.com	How to Cool out a Hot Horse In Winter
21-Nov	HorseJournals.com	Winter Watering Options for your Horse Farm
21-Nov	HorseJournals.com	Winter Management for the Outdoor Horse
21-Nov	OVC Bulletin	Taking the Reins! Exciting Equine Opportunities (EIS symposium)
21-Nov	StandardbredCanada.ca	Respiratory and Lameness Courses Offered
21-Nov	CosaOnline.com	Respiratory and Lameness Courses Offered
21-Nov	HarnessLink.com	Equine Guelph offers respiratory and lameness courses to the global horse racing community
21-Nov	EverythingHorseUK.co.uk	Join Equine Guelph online for the 6th annual Equine Industry Symposium
21-Nov	StandardbredCanada.ca	Equine Symposium set to Return
21-Nov	CosaOnline.com	Horseracing Partners in Ontario Announce Free Respiratory & Lameness Courses
21-Nov	CosaOnline.com	Free Respiratory & Lameness Courses!

21-Nov	RoyalFair.org	Free and self-paced program (Youth Horse Behaviour & Safety)
21-Nov	TheRider.com	Taking the Reins - Exciting Opportunities (Equine Industry Symposium)
21-Nov	TheRider.com	Apply Now for 2021 Racing Industry Scholarships
21-Nov	RidingMagazine.com	TLC for our Senior Horses
21-Nov	StandardbredCanada.ca	Rescue Workshops Resume for Toronto Mounted Police
21-Nov	CosaOnline.com	Register for Fire and Emergency Preparedness
21-Nov	SystemEquine.com	Black Friday Deals and Equine Guelph HEALTHflash
21-Dec	Harnesslink.com	Partnership in presenting free online equine courses
21-Dec	Harnesslink.com	Equine Guelph Equine Alerts
21-Dec	EquineChronicle.com	Free Online Youth Course- Horse Behavior and Safety
21-Dec	EquineChronicle.com	EHV-1 Research Study and Infection Control Tips
21-Dec	HorseTalk.co.nz	Equine herpesvirus outbreak sheds light on nasal microbiota in horses
21-Dec	CosaOnline.com	Last Call To Register For Fire & Emergency Preparedness
21-Dec	StandardbredCanada.ca	Last Call To Register For Fire & Emergency Preparedness
21-Dec	CosaOnline.com	Equine Guelph Discusses EHV-1 Study
21-Dec	StandardbredCanada.ca	PEIHRIA Partners With Equine Guelph
21-Dec	StandardbredCanada.ca	SC Partners With Equine Guelph For Free Gut Health Course
21-Dec	StandardbredCanada.ca	Respiratory Course Instructors Named
21-Dec	StandardbredCanada.ca	Equine Guelph Discusses EHV-1 Study
21-Dec	CosaOnline.com	SC Partners With Equine Guelph For Free Gut Health Course
21-Dec	CosaOnline.com	FREE Respiratory and Lameness Courses!
21-Dec	CosaOnline.com	Respiratory Course Instructors Named
21-Dec	NWHorseSource.com	TLC for our Senior Horses
21-Dec	AmericanHorsePubs.org	EHV-1 Research Study and Infection Control Tips
21-Dec	AmericanHorsePubs.org	Equine Supplement Research Explores Potential Gastric Health Benefits
21-Dec	HorseJournals.com	Podcast - Evaluating Equine Lameness with Dr. Judith Koenig
21-Dec	HorseJournals.com	Podcast - Gut Function and Horses with Dr. Scott Weese

21-Dec	HorseJournals.com	Winter Water Woes and Equine Colic Prevention
21-Dec	TheRider.com	Equine Guelph Large Animal Rescue Workshops Resume with Toronto Mounted Police
21-Dec	TheRider.com	Horse Racing Partners in Ontario Announce Free Respiratory and Lameness Courses
21-Dec	TheRider.com	EHV-1 Research Study and Infection Control Tips
21-Dec	EquineInfoExchange.com	EHV-1 Research Study and Infection Control Tips
21-Dec	EquineChronicle.com	Are Most Horses Lefties?
22-Jan	EquineChronicle.com	Research to Improve Survival of Horses with Diarrhea and Critically Ill Foals
22-Jan	RoyalFair.org	Training and employment in the Equine Industry
22-Jan	PaulickReport	Equine Supplement Shows Promise For Improving Gut Health
22-Jan	Horse-Canada.com	Last Call for FREE Online Youth Offering of Horse Behavior and Safety
22-Jan	Equine Guide 2022	EHV-1 Research and Infection Control Tips
22-Jan	Harnesslink.com	Racehorse Injury/Lameness Prevention Care Course
22-Jan	Harnesslink.com	Last Call for FREE Online Youth Offering of Horse Behavior and Safety
22-Jan	MidSouthHorseReview.com	Last Call for FREE Online Youth Offering of Horse Behavior and Safety
22-Jan	PrestigiousScholarships.com	Last call for FREE online equine behavior and safety course for youth
22-Jan	CosaOnline.com	Equine Guelph Announces Ambassadors
22-Jan	StandardbredCanada.ca	Equine Guelph Announces Ambassadors
22-Jan	StandardbredCanada.ca	McKee To Instruct Injury/Lameness Course
22-Jan	StandardbredCanada.ca	Supplement Studies Explore Gastric Health
22-Jan	StandardbredCanada.ca	Free & Discounted Courses For Members. (Racing courses from Equine Guelph)
22-Jan	StandardbredCanada.ca	Equine Scholarship Winners Announced
22-Jan	StandardbredCanada.ca	Last Call for FREE Youth Equine Course
22-Jan	CosaOnline.com	Register for the Racehorse Respiratory Health Online Short Course!
22-Jan	Quarter Racing Owners of Ontario	Register for the Racehorse Respiratory Health Online Short Course!
22-Jan	AmericanFarriers.com	Hoof-Care Highlights: The Week of January 2 (Lameness Lab linked)
22-Jan	CosaOnline.com	McKee To Instruct Injury/Lameness Course

22-Jan	CanadianThoroughbred.com	Racehorse Injury/Lameness Prevention & Care Course
22-Jan	CosaOnline.com	Supplement Studies Explore Gastric Health
22-Jan	CosaOnline.com	Last Call! – Racehorse Respiratory Course Starts Next Monday!
22-Jan	HBPA.on.ca	Equine Guelph Announces Industry Ambassadors for Free Online Racing-Exclusive Training Program
22-Jan	CosaOnline.com	Free & Discounted Courses For Members
22-Jan	AmericanHorsePubs.org	Last Call for FREE Online Youth Offering of Horse Behavior and Safety
22-Jan	EquusMagazine.com	Last Call for FREE Online Youth Offering of Horse Behavior and Safety
22-Jan	HorseTalk.co.nz	Role of nutraceuticals in equine gastric health explored
22-Jan	EverythingHorseUK.co.uk	Equine Guelph announces recipients of 2021 tuition awards
22-Jan	Harnesslink.com	Equine Guelph announces recipients of 2021 tuition awards
22-Jan	HorseJournals.com	Caring for the Equine Elder
22-Jan	HorseJournals.com	Air Quality in the Horse Barn
22-Jan	HorseJournals.com	A Nutrition Plan for your Senior Horse
22-Feb	NWHorseSource.com	Equine Guelph Declares February Colic Prevention Education Month
22-Feb	StandardbredCanada.ca	Colic Prevention Education Month Begins
22-Feb	CosaOnline.com	Colic Prevention Education Month Begins
22-Feb	CosaOnline.com	Free Registration For Racehorse Gut Health Course
22-Feb	GrandRiverAgSociety.com	GRAS Jumps to Support Equine Guelph's Career and Educational Initiatives
22-Feb	Ontario Farmer	Agricultural Society Supports Equine Guelph Programs
22-Feb	Quarter Racing Owners of Ontario	Racehorse Injury/Lameness Prevention & Care online course
22-Feb	Quarter Racing Owners of Ontario	Ontario Training Workers for Jobs in Harness Horse Racing
22-Feb	Ponies 24-7 The Radio Magazine	Flo Geroux / Ashley Macdonald (on OEEEEP program)/ Chris Loman
22-Feb	Horse-Canada.com	New Equine Fecal Transplant Research at OVC
22-Feb	Horse-Canada.com	Follow Your Heart: Careers in the Horse Industry
22-Feb	CosaOnline.com	GRAS Supports Equine Guelph Programs
22-Feb	CosaOnline.com	Ontario To Invest In Training For Jobs In Harness Racing

22-Feb	CosaOnline.com	Last Call Racehorse Injury/Lameness Prevention & Care
22-Feb	CosaOnline.com	New Research Begins For GI Issues In Horses
22-Feb	StandardbredCanada.ca	New Research Begins For GI Issues In Horses
22-Feb	HorseTalk.co.nz	\$150K boost for Guelph's emergency rescue, youth and jobs programs
22-Feb	FiberArtFest.com	The Grand River Agricultural Society supports Guelph's equine programs
22-Feb	ASHA.AB.ca	Free Registration For Racehorse Gut Health Course
22-Feb	ASHA.AB.ca	Fire and Emergency Preparedness course
22-Feb	ASHA.AB.ca	Equine Guelph declares February Colic Prevention Education Month
22-Feb	ASHA.AB.ca	Racehorse Gut Health & Colic Prevention Course starts next Monday
22-Feb	EquineChronicles.com	Colic is the #1 Killer of Horses
22-Feb	ASHA.AB.ca	EquineJobTrack.ca – your source for horse industry jobs across Canada!
22-Feb	HorseTalk.co.nz	Researchers work to overcome issues with fecal transplants in horses
22-Feb	Harnesslink.com	Equine Guelph receives generous gift of \$150,000
22-Feb	HorseJournals	Grand River Agricultural Society Generously Supports Equine Guelph Programs
22-Feb	HorseJournals.com	Grand River Agricultural Society Generously Supports Equine Guelph Programs
22-Feb	HorseJournals.com	OVC EHV-1 Research and Infection Control Tips
22-Feb	HorseJournals.com	Podcast - Eye Care in the Performance Horse with Dr. Chantal Pinard
22-Feb	HorseJournals.com	Ontario Training Workers for Jobs in Harness Horse Racing
22-Feb	News.Ontario.ca	Ontario Training Workers for Jobs in Harness Horse Racing
22-Feb	Press Conference OEEEP Program	CHCH TV present at OEEEP press conference and reposted on internet
22-Feb	CHCH 6pm news	Ontario Training Workers for Jobs in Harness Horse Racing
22-Feb	Global News	Ontario invests \$2.1 million to address worker shortage in horse racing sector
22-Feb	StandardbredCanada.ca	Ontario To Invest In Training For Jobs In Harness Racing
22-Feb	OntarioRacing.com	Ontario Government Invests \$2.1 Million in Training Program for Horse people

22-Feb	Corona Today's	Gras Jumps To Support Equine Guelph
22-Feb	StandardbredCanada.ca	Free Registration for Racehorse Gut Health Course
22-Feb	EquineInfoExchange.com	Equine Guelph Declares February Colic Prevention Education Month
22-Feb	The Spectator	Ontario government provides \$2.1 million to help horse racing industry get into the winner's circle
22-Feb	Harnesslink.com	Equine Guelph Shares Tips for Colic Prevention Month
22-Feb	Trot Magazine	Ontario Equine Education & Employment Program
22-Feb	AmericanHorsePubs.org	Introduction to Forage Latest Addition to Online Courses for Horse People
22-Feb	AmericanHorsePubs.org	Equine Guelph Declares February Colic Prevention Education Month
22-Feb	HolisticHorse.com	Equine Guelph Declares February Colic Prevention Education Month
22-Feb	HorseIllustrated.com	Under Resources: Equine First Aid and Fire & Emergency Preparedness Courses
22-Feb	TheRider.com	Equine Guelph Announces Industry Ambassadors for Free Online Racing Exclusive Training Program
22-Feb	TheRider.com	Equine Guelph Declares February Colic Prevention Education Month
22-Feb	TheRider.com	Equine Supplement Research Explores Potential Gastric Health Benefits
22-Feb	TheRider.com	New Equine Fecal Transplant Research
22-Feb	TheRider.com	Racehorse Injury/Lameness Prevention & Care Course Instructor Announced!
22-Feb	TheRider.com	2021 Racing Industry Scholarship Winners Announced
22-Feb	TheRider.com	Ontario Training Workers for Jobs in Harness Horse Racing
22-Feb	CayuseCommunications.com	Introduction to Forage online class offered by Equine Guelph
22-Feb	WellingtonAdvertiser.com	Grand River Agricultural Society Generously Supports Equine Guelph Programs
22-Feb	WellingtonAdvertiser.com	Wellington County horse people facing challenge with shortage of 'deadstock operators' (EG on Senior horse)
22-Feb	Wellington Advertiser	Equine Guelph receives \$150,000 over Three Years to Support Programming
22-Feb	Wellington Advertiser	Ontario Training Workers for Jobs in Harness Horse Racing

22-Feb	Wellington Advertiser	Wellington County horse people facing challenge with shortage of 'deadstock operators' (Gayle interviewed)
22-Feb	HarnessLink.com	Introduction to Forage online class offered by Equine Guelph
22-Feb	StandardbredCanada.ca	Equine Guelph offers course on Forage
22-Feb	EquiMed.com	Equine Guelph offers course on Forage
22-Feb	EverythingHorseUK.co.uk	Grand River Agricultural Society Supports Equine Guelph Programs
22-Feb	HorseSport.com	Grand River Agricultural Society Supports Equine Guelph Programs
22-Feb	HorseTalk.co.nz	Three Simple Rules Can Prevent Winter Colic in Horses
22-Mar	RoyalAgriculturalWinterFair E-news	Training and Employment in the Equine Industry begins May 2
22-Mar	Riding-Instructor.com	Equine Guelph Declares February Colic Prevention Education Month
22-Mar	TheHoofbeat Enews by HorseJournals	OVC EHV-1 Research and Infection Control Tips
22-Mar	TheHoofbeat Enews by HorseJournals	Grand River Agricultural Society Supports Equine Guelph Programs
22-Mar	TheHoofbeat Enews by HorseJournals	Ontario Training Workers for Jobs in Harness Horse Racing
22-Mar	TheHoofbeat Enews by HorseJournals	Podcast - Eye Care in the Performance Horse with Dr. Chantal Pinard
22-Mar	HorseSport.com	Ontario Invests \$2.1 million to Train Horse Industry Workers
22-Mar	The Hoofbeat Enews by HorseJournals	Podcast - Regenerative Equine Stem Cell Therapy with Dr. Thomas Koch
22-Mar	HorseTalk.co.nz	Gel-coated stem cells could be next step for horses with osteoarthritis
22-Mar	HarnessLink.com	Ag Safety Week – a reminder of everyday safety with horses
22-Mar	QROOI enews	Introduction to Forage
22-Mar	QROOI enews	Ontario Training Workers for Jobs in Harness Horse Racing
22-Mar	QROOI enews	Racehorse Lameness Course starts next Monday
22-Mar	StandardbredCanada.ca	Last Call To Register For Racehorse Gut Health Course
22-Mar	StandardbredCanada.ca	Register For Introduction To Forage Course
22-Mar	StandardbredCanada.ca	Ag Safety Week – a reminder of everyday safety with horses
22-Mar	Horse-Canada.com	It's Ag Safety Week – Stay Safe on Horse Farms

22-Mar	StandardbredCanada.ca	Last Call to Register for Introduction of Forage
22-Mar	CosaOnline.com	Last Call Racehorse Gut Health course
22-Mar	CosaOnline.com	Last Call to Register for Introduction of Forage
22-Mar	CosaOnline.com	Encapsulating Stem Cells for Treating Equines with Osteoarthritis
22-Mar	StandardbredCanada.ca	Encapsulating Stem Cells for Osteoarthritis Treatment
22-Mar	StandardbredCanada.ca	Henderson To Lead Lameness Prevention Course
22-Mar	EquiMed.com	New Sport Horse Injury/Lameness Prevention & Care Online Course Coming in Apr
22-Mar	EquiMed.com	Ag Safety Week – A Reminder of Everyday Safety on Horse Farms
22-Mar	HorseJournals.com	Podcast - Regenerative Equine Stem Cell Therapy with Dr. Thomas Koch
22-Mar	Riding-Instructor.com	Encapsulating Stem Cells for Treating Equines with Osteoarthritis
22-Mar	Horse-Canada.com	Encapsulating Stem Cells for Treating Equines with Osteoarthritis
22-Mar	SpeedHorse.com	Equine Health: Stem Cell Therapy for Osteoarthritis
22-Mar	AmericanHorsePubs.org	Encapsulating Stem Cells for Treating Equines with Osteoarthritis
22-Mar	AmericanHorsePubs.org	New Equine Fecal Transplant Research
22-Apr	AmericanHorsePubs.org	April Dubbed Vaccination Education Month by Equine Guelph
22-Apr	AmericanHorsePubs.org	New Sport Horse Injury/Lameness Prevention & Care Online Course
22-Apr	EquiMed.com	New Sport Horse Injury/Lameness Prevention & Care Online Course Coming Apr 25 – May 6 NEW!
22-Apr	HorseTalk.co.nz	Short course: Preventing lameness in sport horses
22-Apr	NorthwestHorseSource.com	Encapsulating Stem Cells for Treating Equines with Osteoarthritis
22-Apr	TheRider.com	Encapsulating Stem Cells for Treating Equines with Osteoarthritis
22-Apr	TheRider.com	New Sport Horse Injury/Lameness Prevention & Care Online Course
22-Apr	TheRider.com	Equine Student Creates Positive Ripples
22-Apr	TheRider.com	April Dubbed Vaccination Education Month by Equine Guelph

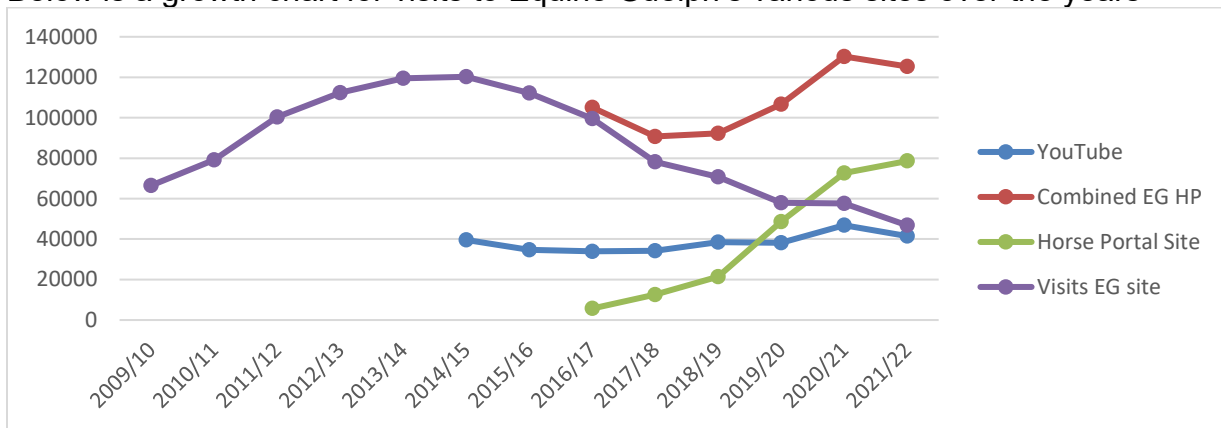
22-Apr	StandardbredCanada.ca	April Is Vaccination Education Month For Horse Owners
22-Apr	HorseJournals.com	Equine Colic - Signs, Symptoms, Treatments
22-Apr	HorseJournals.com	Equine Colic - Signs, Symptoms, Treatments
22-Apr	HorseJournals.com	Have You Organized an Equestrian Event in Ontario? OVC research study call distributed by EG
22-Apr	CosaOnline.com	Equine Employment Program Information Session/Help Spread the Message
22-Apr	CosaOnline.com	Hamilton Mounted Police Conducts Large Animal Rescue Training
22-Apr	Guelph Gazette	Hamilton Mounted Police And Equine Guelph Hosts Giant Animal Emergency Rescue Coaching
22-Apr	EverythingHorseUK.co.uk	Hamilton Mounted Police and Equine Guelph Hosts Large Animal Emergency Rescue Training
22-Apr	Horse-Canada.com	Hamilton Police and Fire Depts. Host LAER Training
22-Apr	StandardbredCanada.ca	Hamilton Mounted Police Conducts Large Animal Rescue Training
22-Apr	CapriCMW Insurance	New Online Course from Equine Guelph (Sport Horse Injury/Lameness Prevention)
22-Apr	HarnessLink.com	Vaccination Education Month by Equine Guelph
22-Apr	EquineChronicle.com	April Dubbed Vaccination Education Month by Equine Guelph
22-Apr	CosaOnline.com	Vaccination Education Month by Equine Guelph
22-Apr	HorseSport.com	Need Summer Grooms? There is Government Money for That
22-Apr	Horse-Canada.com	Need Summer Grooms? There is Government Money for That
22-Apr	HorseJournals.com	How to Wrap Horses Legs
22-Apr	HBPA.on.ca	New Sport Horse Injury/Lameness Prevention & Care Online Course

Appendix 13: Web Site Report

May 1, 2021 – April 30, 2022

	Equine Guelph	TheHorsePortal.ca	YouTube	Combined Total
Visits/Sessions	46,810	78,593	41,500	125,403
Page Views	80,642	623,947		704,589
New Users	34,117	43,594		77,771
Avg. Session Time	02:07	05:18	2:51	

Below is a growth chart for visits to Equine Guelph's various sites over the years



TECHNOLOGY OVERVIEW

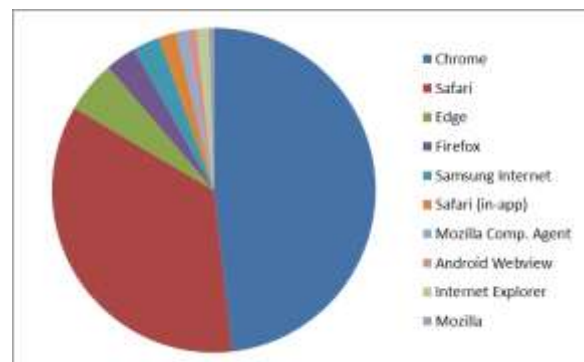
(Audience – Mobile – Overview)

Device	EquineGuelph.ca		TheHorsePortal.ca		YouTube.ca	
	Sessions	Percentage	Sessions	Percentage	Views	Percentage
Mobile	32,812	41.73%	32,068	(41.75%)	12,873	27.5%
Desktop	43,370	55.74%	37,168	(55.18%)	29,615	63.2%
Tablet	871	2.53%	2,411	(3.07%)	2,617	5.6%
TV					853	1.8%
Game Console					48	0.1%

TOP 10 BROWSERS – OPERATING SYSTEM (Audience – Technology – Browser)

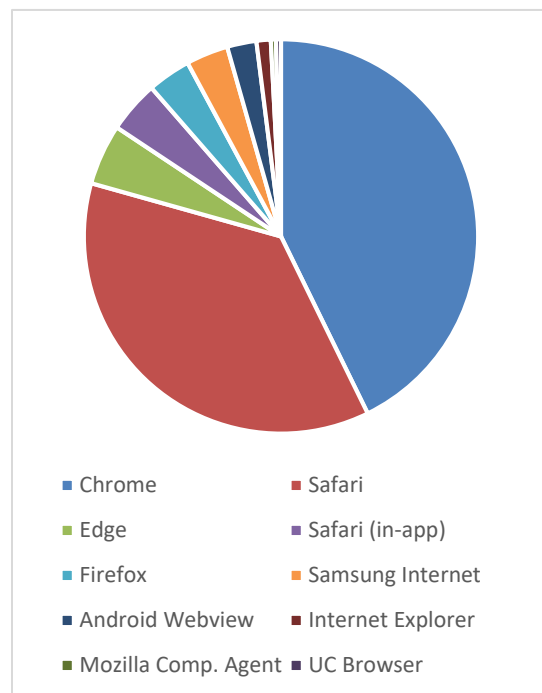
Equine Guelph.ca

Operating system	Sessions	Percentage
Chrome	27,648	(47.98%)
Safari	20,242	(35.12%)
Edge	3,002	(5.21%)
Firefox	1,769	(3.07%)
Samsung Internet	1,547	(2.68%)
Safari (in-app)	1,017	(1.76%)
Mozilla Comp. Agent	589	(1.02%)
Android Webview	586	(1.02%)
Internet Explorer	681	(1.18%)
Mozilla	300	(0.52%)



TheHorsePortal.ca

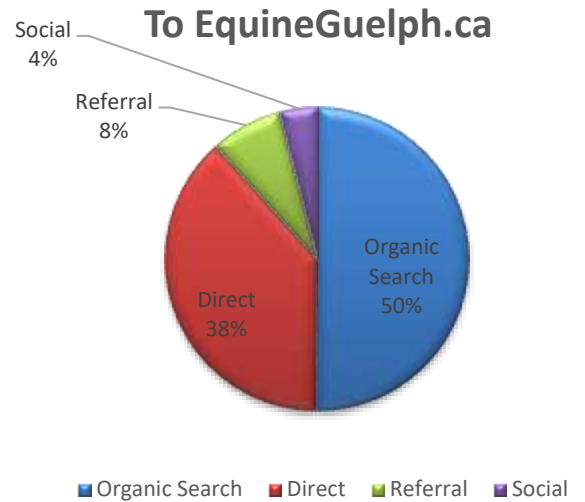
Browser	Users	Sessions
Chrome	30,788	(42.38%)
Safari	26,362	(36.29%)
Edge	3,587	(4.94%)
Safari (in-app)	3,066	(4.22%)
Firefox	2,559	(3.52%)
Samsung Internet	2,490	(3.43%)
Android Webview	1,730	(2.38%)
Internet Explorer	842	(1.16%)
Mozilla Comp. Agent	302	(0.42%)
UC Browser	295	(0.41%)



ACQUISITION CHANNELS (Acquisition – All Traffic – Channels)

EquineGuelph.ca

	Channel	Sessions	Percentage
1	Organic Search	28,598	(49.62%)
2	Direct	21,813	(37.85%)
3	Referral	4,302	(7.46%)
4	Social	2,302	(3.99%)
5	Email	610	(1.06%)



YouTube

	Channel	Views	Percentage
1	External	25,702	54.9%
2	YouTube Search	4,452	9.5%
3	Direct	4,013	8.6%
4	Playlists	3,731	8.0%
5	Browse Features	3,050	6.5%

TheHorsePortal.ca

	Channel	Sessions	Percentage
1	Organic Search	28,687	(39.49%)
2	Direct	22,436	(30.89%)
3	Referral	14,585	(20.08%)
4	Social	6,762	(9.31%)
5	Email	169	(0.23%)
6	(Other)	2	(0.00%)

To TheHorsePortal.ca



TOP REFERRAL SOURCES (Acquisition – All Traffic – Source/Medium)

EquineGuelph.ca - Source	Sessions	Percent
1. google/organic	27,396	(47.54%)
2. direct	21,813	(37.85%)
3. m.facebook.com/referral	1,650	(2.86%)
4. bing / organic	895	(1.55%)
5. courselink.uoguelph.ca / referral	799	(1.39%)
6. equineguelph.ca / referral	625	(1.08%)
7. standardbredcanada.ca / referral	537	(0.93%)
8. thehorseportal.ca/referral	301	(0.52%)
9. Press Release The Real Cost of Horse Ownership / email	270	(0.47%)
10. l.facebook.com / referral	269	(0.47%)

	TheHorsePortal.ca - Source / Medium	Sessions	Percent
1	google / organic	27,482	(37.83%)
2	(direct) / (none)	22,436	(30.89%)
3	equineguelph.ca / referral	5,004	(6.89%)
4	m.facebook.com / referral	4,845	(6.67%)
5	standardbredcanada.ca / referral	2,086	(2.87%)
6	courses.opened.uoguelph.ca / referral	1,752	(2.41%)
7	Equusmagazine.com/ referral	1,004	(1.38%)
8	l.facebook.com / referral	923	(1.27%)
9	albertaequestrian.com / referral	875	(1.20%)
10	bing / organic	814	(1.12%)

TRAFFIC SOURCES SOCIAL MEDIA. (Acquisition – Social – Network Referrals)

EquineGuelph.ca

Social Network	Sessions	Percentage
1. Facebook	2,029	(88.14%)
2. YouTube	91	(3.95%)
3. Twitter	89	(3.87%)
4. Pinterest	37	(1.61%)
5. Instagram Story	23	(1.00%)
6. Instagram	19	(0.83%)
7. LinkedIn	14	(0.61%)

TheHorsePortal.ca

	Social Network	Sessions	Percentage
1	Facebook	6,227	(92.09%)
2	Twitter	160	(2.37%)
3	LinkedIn	128	(1.89%)
4	Instagram	91	(1.35%)
5	Instagram Stories	60	(0.89%)
6	YouTube	50	(0.74%)
7	WordPress	18	(0.27%)
8	Pinterest	12	(0.18%)
9	Snapchat	8	(0.12%)
10	Weebly	8	(0.12%)

CONTENT

TOP 10 LANDING PAGES. (Behaviour – Site Content – Landing Pages)

	EquineGuelph.ca Pages	Sessions	Percentage
1.	/jobtrack/jobs.php	10,878(18.88%)	
2.	/education/programs_list.php	3,746	(6.50%)
3.	/jobtrack/index.php	2,449	(4.25%)
4.	/education/indiv_courses.php	2,152	(3.73%)
5.	/Tools/lameness_lab.php	1,412	(2.45%)
6.	/Tools/fireprevention.php	1,381	(2.40%)
7.	/Tools/HorseBlanketingTool.php	1,359	(2.36%)
8.	/Tools/lameness_checklist.php	1,297	(2.25%)
9.	/education/index.php	1,264	(2.19%)
10.	/education/store.php	1,040	(1.80%)
	TheHorsePortal.ca Pages	Sessions	Percentage
1	/home page	9,316	(12.82%)
2	<u>/covid-19-updates-resources/</u>	8,427	(11.60%)
3	/courses/	4,789	(6.59%)
4	/12-week-courses/	4,550	(6.26%)
5	<u>/course/horse-behaviour-safety-youth-course-f20-2/</u>	3,285	(4.52%)
6	/my-account/	2,303	(3.17%)
7	/partner/racingpilotproject/	1,515	(2.09%)
8	<u>/2016/11/winter-waterers-for-horses-cattle-and-livestock/</u>	1,354	(1.86%)
9	/stop-think-act/	1,168	(1.61%)
10	/log-in/	962	(1.32%)
	YouTube Top Videos	Views	Percentage
1	Lameness Lab - Case 1 - Assessment	1,956	4.2%
2	Equine Conditioning - Dr. Hilary Clayton	1,662	3.6%
3	Foaling How To's - Monitoring Foaling	1,321	2.8%
4	Equine Dental - The Tale of the Teeth	1,089	2.3%
5	The Basics of Infection - How To	1,058	2.3%
6	Roaring Research - What is Roaring?	818	1.8%
7	Dehydration Tests from Horse Health Tracker	803	1.7%
8	What are the signs a horse may be lame? - Dr. Nicola Cribb	772	1.7%
9	Foaling How-To's - Predicting Foaling - Dr. Tracey Chenier	740	1.6%
10	Journey through the Digestive Tract Part 1	655	1.4%

Appendix 14: Sponsors

Equine Guelph would like to thank the following sponsors for their contributions and support of Equine Guelph's program.



- E-Newsletter
- Senior Horse Challenge Tool
- Course on TheHorsePortal.ca



- EquiMania! Youth Safety Initiative



- Industry Education Partner
- Course on TheHorsePortal.ca



- Colic Risk Rater Tool
- Hoofprints Tribute Program
- Education Patron
- Risk Series Brochures
- Courses on TheHorsePortal.ca



- National Training Partner



- EquiMania! Youth Safety Initiative



- EquiMania! Youth Safety Initiative



- HEALTHflash
- Course on TheHorsePortal.ca
- Vaccination Equi-Planner Tool



- EquiMania! Youth Safety Initiative



- EquiMania! Exhibit



- Industry Education Partner
- Course on TheHorsePortal.ca



- EquiMania! Youth Safety Initiative



- Industry Education Partner
- Course on TheHorsePortal.ca



- EquiMania! Youth Safety Initiative
- HEALTHflash



- EquiMania! Youth Safety Initiative
- Fire Prevention Education

Quarter Report - Q4, Equine Guelph, 2021-2022 FY

Operating Accounts:

Revenue-Expense REVENUE	Category	Type	YTD	Notes
	GENERAL REVENUE	HORSE PORTAL, LAR, GRANTS, ETC.* OPEN-ED - 12 WK COURSE TUITION	-\$175,936.08 -\$119,256.06 -\$295,192.14	*CAP Revenue lower than anticipated. OHHA payment for OEEEP will appear in FY2022-23
	TRANSFERS	FUND TRANSFER - HIP/QH RES. SUPPORT SPONSORSHIP*	-\$38,000.00 \$0.00 -\$38,000.00	*No spon transfer was completed, as goal is to reduce carryforward. Funds kept instead in AA&D accounts.
	PERSONNEL	SALARIES/BENEFITS - EG STAFF	\$463,831.82	
	OPERATING	EDUCATIONAL SEMINAR (STAFF, HON'S) HORSE PORTAL REG - VISA/MC FEES LEASE AND RENTAL PMTS - PRINTER EXTERNAL CONTRACTS AND SERVICES INTERNET FOR TABLETS CLASSROOM SUPPLIES OFFICE SUPPLIES SUPPLIES- DATA PROCESSING/COMPUTERS MISCELLANEOUS SUPPLIES PRINTING AND PUBLICATION CHARGES MISCELLANEOUS EXPENSES UofG PHONE SERVICES, PARKING TRAVEL/RELOCATION/HOSPITALITY	\$19,585.64 \$1,793.44 \$616.32 \$11,541.73 \$675.85 \$123.58 \$0.00 \$364.41 \$28.89 \$3,017.13 \$0.00 \$4,303.73 \$1,124.82 \$43,175.54	
Sub-Total			\$43,175.54	
		TOTAL EQUINE GUELPH 2021-2022	-\$173,815.20	
		2020-2021 BUDGET CARRYFORWARD	\$467,679.00	
		TOTAL EQUINE GUELPH CARRYFORWARD	\$293,863.80	2021-22 Budget had anticipated 332k in carryforward

Equine Guelph Financial Report - Research Program

As at: April 30, 2022

Account Number:

FUND BALANCE, Previous Year End

EP TAYLOR	HIP/QH	HBPA	Donations/Other	Totals:
710655	045878	046071	022298	
\$49,349	\$34,460	-\$17,905	\$2,159	\$68,063
REVENUE				
EP Taylor Endowment	-	-	-	\$101,924
HIP/QR Allocation	\$125,000	-	-	\$125,000
HBPA Allocation	-	\$65,000	-	\$65,000
Donations	-	-	\$0	\$0
TOTAL REVENUE	\$125,000	\$65,000	\$0	\$291,924

INTERNAL TRANSFERS

HIP/QH Admin Support (20%)	-\$25,000	-	-	-\$25,000
HBPA Admin Support (20%)	-	-\$13,000	-	-\$13,000
Other	-\$17,906	\$17,906	A	\$0
TOTAL TRANSFERS	-\$42,906	\$4,906	\$0	-\$38,000

PROGRAM EXPENDITURES

Research Project Allocations	-\$14,200	-\$41,744		-\$112,297
Peer Review Honorariums				-\$1,079
Other Expenses (Travel, etc.)	-\$14,200	-\$41,744		\$0
				-\$113,376

FUND BALANCE AS AT APRIL 30, 2022

	\$102,354	\$10,257	\$2,159	\$208,611
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Notes:

A - Funds transfer from HIP to HBPA to correct deficit