In breeds that compete at an early age, there is pressure to start breeding early in the year to ensure the foal gets a head start over its contemporaries.

However, breeding early in the year is at odds with the horse’s natural breeding season, which occurs some months later. Mares are seasonally polyoestrus. Their oestrus cycle generally stops during the winter, and starts again in the spring.

A major stimulus to the onset of cyclic ovarian activity is increasing day length. This has led to the practice of artificially prolonging the hours of daylight to encourage mares to start cycling early. Hormone therapy can be used to stimulate ovarian activity but can be expensive and time consuming.

Does the presence of a stallion in the barn have the same effect? In the wild, mares tend to live in herds with a stallion throughout the year. But domesticated mares and stallions are kept separately, often with little contact between them.

Research published in the journal Theriogenology suggests that exposure to a stallion does indeed accelerate the onset of mare’s ovarian activity.

Dr Bettina Wespi and colleagues investigated the effect of the presence of a stallion on the return of cyclicity after winter anoestrus.

The research was carried out between mid-February and the end of April over two consecutive years and involved 22 mares and two stallions.

During the study, mares were housed in a barn containing a row of 8m x 12m stables. The stables were separated by wooden walls with a grill above, so horses could see and smell, but not touch, each other. Mares were turned out in a paddock for three hours a day.

One group of mares was housed with a stallion in the end box. The stallion was allowed to roam up and down the corridor outside the boxes.

The researchers found that mares kept in a barn with a stallion ovulated earlier and more often during the study period than did mares that were not exposed to a stallion.

The onset of cyclicity was not significantly affected by the time mares were in direct contact with the stallion, or the age, body condition or parasite burden of the mare. Neither did the size of the mare’s largest follicle at the start of the study affect the onset of ovarian activity. Similar effects were seen with both stallions used in the study.

The authors conclude: “Exposing mares to the proximity of a stallion can therefore be an alternative to, for example, light programs or elaborated hormonal therapies to start the breeding season earlier and increase the number of estrous cycles in horses.”

For more details see:

Exposure to stallion accelerates the onset of mares’ cyclicity
B. Wespi, H. Sieme, C. Wedekind, D. Burger
Doi: 10.1016/j.theriogenology.2014.03.019
Eleven months is a long time to wait to see if the foal is a colt or a filly. The foal's gender may have a significant effect on its value to the breeder. For example, amongst Polo Horse breeders in there is a higher demand for female offspring than for males.

An ultrasound scan can be used to find out in advance whether the foal is a colt or a filly. Advanced techniques such as gender selection of sperm can be used to influence the sex of the foal.

But what about other less high-tech solutions? The phases of the moon may influence various biological processes. Is there any truth in the suggestion that the phase of the moon at the time of conception can influence the sex of the foal – or is it just an old wives tale?

José Javier Aguilar and colleagues from the Universidad Nacional de Río Cuarto, in Córdoba, Argentina, have recently published research in the journal Chronobiology International.

Their study aimed to determine whether there was a significant association between the phase of the moon at the time of mating and the sex of the foal that was subsequently born.

The researchers retrieved information from the Argentinian Stud Book on all matings registered for Thoroughbred and Arab horses between 2003 and 2011. They then examined the data to see if there was any association between the gender of the foal and the phase of the moon at time of conception.

They analysed a total of 65,535 pregnancies, which produced 50.96% fillies and 49.04% colts. They found no correlation between lunar phase at conception and ratio of male to female foals subsequently born.

They conclude that "managing the breeding dates in relation to lunar cycles in order to manipulate the sex ratio of the offspring is not a viable option in horses."

For more details see:

Lunar cycles at mating do not influence sex ratio at birth in horses.
doi: 10.3109/07420528.2014.950738

The Center for Equine Health at the University of California, Davis, is seeking input from horse owners, trainers, riders and veterinarians for an online survey regarding the management practices of all performance horse disciplines.

Claudia Sonder, a veterinarian and director of the Center for Equine Health, is conducting a study to help identify links between performance horse management practices and musculoskeletal health, injury and performance.

"Once we identify trends in management practices and correlate them with health, injury and performance, we will target research to fill gaps in knowledge and establish science-based recommendations for equine athletes," she said.

The anonymous, online survey should take about 10 minutes to complete.

Go to:
Clearing sand accumulation

Administering a combination of psyllium and magnesium sulphate appears to be more effective for clearing sand accumulation in the large colon than either medication given separately.

Horses grazing sandy land can ingest significant amounts of sand, especially when there is patchy grass cover. This can lead to sand accumulation in the large colon which can cause mucosal irritation and may lead to colonic displacement.

Signs of sand colic include diarrhoea or poor body condition. The diagnosis can be supported by finding sand in the faeces. Sand accumulation within the colon can be demonstrated by abdominal radiography.

In a study to be published in the Veterinary Journal, Kati Niinistö and colleagues assessed the response to two common treatments for the condition.

Thirty four horses with naturally acquired sand accumulation in the large colon were included in the study. The diagnosis was confirmed by demonstrating sand accumulation measuring more than 5cm x 15cm (75cm²) on radiography of the abdomen.

Horses were randomly assigned to one of three treatment groups and received medication by nasogastric tube once daily for four days. Treatments used were: 1 g/kg psyllium alone; 1 g/kg magnesium sulphate (MgSO₄) alone, or psyllium and magnesium sulphate combined.

Success of the treatment was determined by radiography of the abdomen on the fourth day. The sand accumulation was deemed to have resolved if less than 25cm² of sand was present.

The researchers found that of twelve horses treated with the combination of psyllium and magnesium sulphate, nine responded. In contrast only three of twelve treated with psyllium alone, and two of ten treated with magnesium sulphate alone, showed a satisfactory response.

They conclude: “In this prospective randomised clinical study, administration of a combination of MgSO₄ with psyllium via nasogastric tube once daily for 4 days appeared to be the most effective treatment for removing large accumulations of sand from the large colon of horses when compared with administration of psyllium or MgSO₄ alone.”

For more details see:

Comparison of the effects of enteral psyllium, magnesium sulphate and their combination for removal of sand from the large colon of horses
Kati Niinistö, Michael Hewetson, Ritva Kaikkonen, Ben W. Sykes, Marja Raekallio
To appear in: The Veterinary Journal

doi: 10.1016/j.tvjl.2014.10.017
New research suggests that dental problems may not play as big a role in large colon impactions as often thought.

Impaction of the large colon is often seen in horses that have recently had a sudden decrease in exercise, such as when confined to the stable after a musculoskeletal injury. Other factors that have been implicated include dietary change, feed that is too fibrous, poor dental care, and insufficient water intake.

Impactions may also develop secondary to other intestinal diseases, such as infection with the tapeworm Anoplocephala perfoliata.

Research conducted by Helga Gunnarsdottir and colleagues, of the Faculty of Veterinary Medicine, Ghent University, Belgium, looked at whether horses with large colon impaction were more likely than others to be affected by dental problems. The study also investigated the relationship between faecal particle size and dental problems in both horses that had been affected by colon impactions and those that had not.

The study included 39 horses with large colon impaction and 72 unaffected control horses from a hospital-based population. Eight of the impaction group had required surgical treatment for the impaction, the remainder had responded to medical management.

The researchers assessed the dental health of each horse, and assigned an appropriate oral pathology score (OPscore) and periodontal disease index (PDI). They also collected faecal samples to estimate faecal particle size.

They found that horses with large colon impactions did not have more severe dental problems than control horses. OPscore and PDI were not significantly different between impaction and control groups.

Horses with impaction did have a higher percentage of soft tissue injuries in the mouth – (82.1% vs. 63.9%; \( P = 0.046 \)). However, there was no significant difference between the two groups in other dental abnormalities, including abnormalities of dental wear, malpositioned teeth, periodontal disease and tooth fractures.

Neither did the researchers find an association between dental problems and faecal particle size.

In horses with large colon impaction, faecal particle size increased with increasing PDI (\( P = 0.05 \)).

An interesting finding was that, contrary to expectations, faecal particle size estimates were significantly higher in control horses than in horses with large colon impaction.

The researchers comment that “this would suggest that dental pathology and fibre length in the intestinal contents were not key factors in the complex aetiology of large colon impaction in the cases examined.”

For more details see:

Hospital-based study of dental pathology and faecal particle size distribution in horses with large colon impaction.

Does the bit promote gut activity?

Post-operative ileus (POI), the failure of normal propulsive intestinal motility, is a recognised post–operative complication and a major contributing factor to mortality. It is particularly likely to occur after surgery involving the small intestine.

In human medicine, it has been noticed that early feeding, or chewing gum, seems to promote early resumption of intestinal activity and reduce the time from completion of surgery to first bowel movement.

Early feeding is rarely appropriate in horses with gastric reflux and POI. But would chewing on a bit have a similar effect in horses as gum chewing has in people? Researchers in Italy have been investigating.

In work carried out at the Department of Veterinary Science, University of Turin, Gessica Giusto and others sought to find a method of producing chewing movements in horses without them eating food and then to assess what effect that had on gut sounds of normal horses.

They assessed the alteration in gut sounds in response to placing a bit in the horse's mouth. Ten healthy horses were used for the study. The researchers monitored intestinal sounds from the right dorsal quadrant – the area overlying the ileocaecal junction. Recordings were made on three separate occasions at weekly intervals. Horses were fasted for at least 4 hours before each experimental session.

They recorded sounds for five minutes before, and for 18 minutes after placing a snaffle bit with toggles in the horses’ mouth.

To analyse the recordings the researchers divided them into five minute sections and noted the number of sounds present. Sounds were classified as short sounds (lasting <3 seconds) and longer sounds (lasting >3 s).

They found that putting a bit in the horses’ mouth resulted in consistent chewing and swallowing in all horses. This lasted for about 20 minutes. There was a significant increase in the number of shorter intestinal sounds within five minutes of putting the bit in the mouth. There was no significant change in the number of longer sounds.

Shorter duration intestinal sounds in the right dorsal quadrant may indicate contractions of the caecum mixing the caecal contents. Longer sounds probably relate to propulsive activity of the ileum associated with emptying of contents through the ileocaecal valve.

Although the increased gut sounds in response to bit chewing may relate to increased gut motility further work needs to be done to confirm that.

However, given that bit chewing is a normal part of a horse’s life, and is usually well tolerated, the researchers suggest that placement of the bit two-three times a day in the post-operative period of a horse at risk of POI would do no harm and might be beneficial in preventing and treating motility disorders.

They conclude: “bit chewing can be easily obtained in horses at rest, and further evaluation as an adjunctive element in the management of POI is warranted.”

For more details see:

Effects of bit chewing on right upper quadrant intestinal sound frequency in adult horses.


Doi: 10.1016/j.evs.2013.11.006
Microbiologists and molecular biologists at ETH Zurich and the University of Bonn have discovered a new agent in fungi that kills bacteria. The substance, known as copsin, has the same effect as traditional antibiotics, but belongs to a different class of biochemical substances. Copsin is a protein, whereas traditional antibiotics are often non-protein organic compounds.

The researchers led by Markus Aebi, Professor of Mycology, discovered the substance in the common inky cap mushroom *Coprinopsis cinerea* that grows on horse dung. When they began their research, the scientists were interested in understanding how this fungus and various bacteria affect each other’s growth. This involved cultivating the fungus in a laboratory along with several different types of bacteria. It was found that *C. cinerea* is able to kill certain bacteria. Further research demonstrated that the copsin produced by the mushroom is responsible for this antibiotic effect.

Copsin belongs to the group of defensins, a class of small proteins produced by many organisms to combat microorganisms that cause disease. The human body also produces defensins to protect itself against infections. They have been found, for example, on the skin and in the mucous membranes.

For Aebi, the main focus of this research project was not primarily on applications for the new substance. “Whether copsin will one day be used as an antibiotic in medicine remains to be seen. This is by no means certain, but it cannot be ruled out either,” he says. The ETH professor is much more intrigued by fundamental questions, such as how fungi have used defensins and other naturally antibiotic substances for millions of years to protect themselves against bacteria. Why does this work for fungi while humans have been using antibiotics in medicine for just 70 years with many of them already becoming useless due to resistance? “Fungi have internal instructions on how to use these substances without resulting in selection of resistant bacteria. How to decode these instructions is an intriguing problem for basic research,” explains Aebi.

The ETH researchers were also able to unravel the exact mechanism of action, discovering that copsin can bind to lipid II, an essential building block for the cell wall of bacteria. “Building the cell wall is the Achilles heel of bacteria,” explains Essig. If copsin binds to lipid II, the bacteria die because they are unable to build new cell wall.

Andreas Essig, lead author of the study, is currently exploring potential applications for copsin that has been registered for patent approval. It was the biochemical properties of the substance that led the scientist to do so. “Copsin is an exceptionally stable protein,” says Essig. Proteins are generally susceptible to protein-degrading enzymes and high temperatures. Copsin is an exception because it also remains stable when heated to a temperature of 100 degrees Celsius for several hours or when subjected to protein-degrading enzymes. The researchers believe that the protein has these properties because of its extremely compact three-dimensional structure.

In addition to being used as an antibiotic in medicine, it may also be possible to use copsin in the food industry as well. This is because copsin kills many pathogens including Listeria, a type of bacteria that can cause severe food poisoning and is therefore feared, especially in the production of non-heat treated foodstuffs such as raw milk cheeses and dried meats.

For more details see:
Effect of fish oil and thyme on sperm quality

Dietary supplementation with fish oil and thyme can improve sperm quality in miniature Caspian stallions during storage at 5ºC according to recent research.

Polyunsaturated fatty acids (PUFAs), such as docosahexaenoic acid (DHA an omega-3 fatty acid) are an important constituent of the plasma membrane of mammalian spermatozoa. PUFAs are fragile molecules, and are readily oxidised. Oxidative damage to the PUFAs in spermatozoa could adversely affect sperm structure and function.

Animals cannot synthesize PUFAs from saturated or monounsaturated fatty acids; so, they must acquire them from their diet.

Fish oils are derived from the tissues of oily fish. They are a rich source of omega-3 fatty acids such as eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). The fish from which these oils are obtained do not actually produce omega-3 fatty acids themselves, but instead accumulate them by eating (directly or indirectly) microalgae that do so.

Thyme (Thymus vulgaris), a plant long known for its culinary and medicinal uses, is rich in essential oils and antioxidative substances.

So does supplementing the diet with PUFAs (e.g. fish oil) and antioxidants (e.g. thyme) improve fertility?

A study carried out in Iran investigated the effect of dietary thyme and fish oil supplementation on the semen characteristics of miniature Caspian horse.

The researchers randomly allocated sixteen Caspian stallions into four groups according to dietary supplementation: fish oil (2.5% dry matter intake (DMI)); thyme (0.02% DMI); fish oil (2.5% DMI) and thyme (0.02% DMI); and a control group that received no supplement.

All experimental diets were formulated in accordance with National Research Council recommendations.

Semen samples were collected at 0, 30, 60, and 90 days, and were cooled and preserved at 5 ºC.

The research team assessed sperm viability at the time of collection and after 24 and 48 hours of storage at 5 ºC. Various parameters were measured including motility, structural abnormalities, viability and plasma membrane integrity.

They found that total and progressive sperm motility and plasma membrane integrity and functionality in all groups decreased significantly with increasing storage time. However, most measures of sperm quality were significantly higher in the group supplemented with fish oil and thyme, compared with the thyme supplemented and control groups after 24 and 48 hours storage at 5ºC.

The researchers concluded that “dietary supplementation of fish oil and thyme can improve sperm quality in miniature Caspian stallions during storage in cool condition via increasing total and progressive motility and plasma membrane integrity and functionality.”

For more details see:
Effects of Dietary Thyme (Thymus vulgaris) and Fish Oil on Semen Quality of Miniature Caspian Horse.
Ali Kheradmand Garmsir, Ahmad Zareh Shahnhe, Sayed Mohammad Ali Jalali, Houshang Nouri, Majid Afshar
Journal of Equine Veterinary Science 34 (2014) 1069–1075
Doi:10.1016/j.jevs.2014.06.008
Two research articles on Atypical Myopathy have been made freely available thanks to an initiative of BEVA and Equine Veterinary Education.

2014 saw a surge in cases of Atypical Myopathy (AM) in the United Kingdom.

Affected horses have clinical signs such as muscle weakness or stiffness, colic-like signs, laboured breathing, dark red-brown urine, recumbency or even sudden death. Muscle tremors and generalised or patchy sweating may be seen.

Often the first sign of disease is stiffness, especially of the hindquarters. However, it is not unusual for severely affected cases to be found dead on the pasture with no previous sign of illness.

Recent research, published in the Equine Veterinary Journal, shows the disease to be caused by the toxin hypoglycin A, which can be found in the seeds of sycamore trees. Other trees of the Acer family may also be implicated, with the box elder tree being responsible for outbreaks of Seasonal Pasture Myopathy (SPM), a very similar disorder that is prevalent in Midwestern USA and Eastern Canada.

Speaking in November 2014, Professor Celia Marr, Partner at Rossdales, Newmarket, European Specialist in Equine Internal Medicine and Editor of Equine Veterinary Journal said: “We have seen unprecedented cases of AM since the high winds last month – more than five times as many as this time last year. This dramatic rise appears to be reflected across the UK. It is imperative to spot the symptoms of AM and commence treatment promptly, preferably with hospitalisation of the affected animal to give it any chance of survival.”

The free online articles are from the journal Equine Veterinary Education as follows:

Management of cases suffering from atypical myopathy: Interpretations of descriptive, epidemiological and pathophysiological findings. Part 1: First aid, cardiovascular, nutritional and digestive care (pages 264–270)

G. van Galen and D.-M. Votion

And

Management of cases suffering from atypical myopathy: Interpretations of descriptive, epidemiological and pathophysiological findings. Part 2: Muscular, urinary, respiratory and hepatic care, and inflammatory/infectious status (pages 308–314)

G. van Galen and D.-M. Votion
Volume 25, Issue 6, pages 308–314, June 2013

As the last few months of 2014 saw an unusually high number of cases of Atypical Myopathy, it is appropriate that the Equine Veterinary Journal has released a podcast on the subject. Based on a presentation at this year’s conference of the British Equine Veterinary Association, it features Dr Bettina Dunkell reviewing recent research that identified the toxin responsible for the disease.

Other topics covered are Neonatal Maladjustment Syndrome ("dummy foals"), antibiotic therapy for Rhodococcus infections and a comparison of two different preparations of omeprazole for treatment of gastric ulcers.

You can find the podcast (free) at EVJ’s homepage:
Equine Veterinary Journal - Wiley Online Library
or on i-Tunes
Researchers from Kentucky and Denmark are to start work on building a new DNA map for the domestic horse.

Ted Kalbfleisch, Ph.D., of the University of Louisville Department of Biochemistry and Molecular Biology, is the principal investigator on the project. He will be joined in the research by Ludovic Orlando, Ph.D., of the Centre for GeoGenetics at the National History Museum, University of Copenhagen; and James MacLeod, V.M.D., Ph.D., of the Gluck Equine Research Center at the University of Kentucky. The three-year project is being funded by a grant from the Morris Animal Foundation.

The gene sequence will be a valuable tool for animal researchers worldwide and the equine industry in particular because it will significantly improve the ability to understand the role of genetics in animal health and well-being.

Genome sequencing allows researchers to read and decipher genetic information found in DNA and is especially important in mapping disease genes – discovering the diseases a horse might be genetically predisposed to developing.

“In 2009, Morris Animal Foundation helped fund the first genome reference sequence for the domestic horse,” Kalbfleisch said. “We intend to build on this earlier work. In the past five years, there have been dramatic improvements in sequencing technology as well as the computational hardware and algorithms required to analyse the data generated by the technology. Therefore, we now have the tools necessary to vastly improve the reference genome for the horse.”

The current reference genome for the horse, known as “EquCab2,” has been beneficial in studying horses and their genetic predisposition to disease, but it is not without its shortcomings, Kalbfleisch said.

“The horse research community is working to understand the relationship among genomic structure, variation found within it and complex diseases and traits in the domestic horse,” he said. “The EquCab2 reference genome was developed prior to the development of today’s highly sophisticated technology.

“With the application of new high-throughput technologies we have available today, we will map the genome with a focus on what is known as the ‘GC-rich regulatory regions.’”

These GC-rich regulatory regions control how genes are expressed (turned on) in order to participate in normal cellular processes. This work will enable scientists to better catalogue genetic variation in these regions and understand how it affects health and performance.

“We expect our research to have substantial impact because the horse research community has actively moved to the translational application of genomics in examining important questions in equine science,” Kalbfleisch said. “The improved reference genome we will map will directly improve both the quality and productivity of research being carried out in the equine industry.”

Waiting for a foal to arrive can be a daunting prospect. The Foaling Guide gives you the background knowledge and information you need to approach the event with confidence.

Know what to expect, what can go wrong and what to do about it.
For more details go to: www.TheFoalingGuide.com
Humans spread horse gait mutation

From the Faroe Pony to the Spanish Mustang, fewer animals have played such a central role in human history as the horse. Research published in Animal Genetics reveals that a horse’s gait, an attribute central to its importance to humans, is influenced by a genetic mutation, spread by humans across the world.

The team, led by Dr. Leif Andersson from the Swedish University of Agricultural Sciences explored the distribution of a mutation in the DMRT3 gene which affects the gait of horses, known as the ‘gait keeper.’

“All over the world, horses have been used for everyday transportation, in military settings, cattle herding and agricultural power, pulling carriages and carts, pleasure riding or racing,” said Dr Andersson. “Over the centuries, horse populations and breeds have been shaped by humans based on the different purposes for which the animals were used.”

The DMRT3 gene is central to the utility of horses to humans, as it controls a range of gaits as well as pace. From racing to pleasure riding, many species have been bred to encourage smoothness of gait.

“For example, the Paso Fino is a breed from Latin America in which the frequency of the ‘gait keeper’ mutation is nearly 100%. It is claimed that the Paso Fino gait is so smooth that you can have a glass of wine in your hand without letting it spill,” said Dr Andersson.

The team analysed 4,396 horses from 141 breeds around the world and found that the ‘gait keeper’ mutation is spread across Eurasia from Japan in the East, to the British Isles, Iceland, in both South and North America, and also in breeds from South Africa.

“Humans have spread this mutation across the world primarily because horses carrying this mutation are able to provide a very smooth ride, in some breeds referred to as a running walk,” said Dr Andersson. “During such ambling gaits the horse has at least one foot on the ground that means that the vertical movement of the rider is minimal.”

For more details see:

Worldwide frequency distribution of the ‘Gait keeper’ mutation in the DMRT3 gene
Animal Genetics (2014) 45,274-282
DOI: 10.1111/age.12120

Blood test for encysted worms

The Horserace Betting Levy Board has just released a presentation by Dr Jacquie Matthews describing the progress towards a blood test for larval cyathostominosis.

To be able to identify which horses have a high burden of encysted worm larvae in the gut wall would be a great step forward in the control of the problem.

http://www.hblb.org.uk/documents/blog/Prj%20756.pdf
The 2nd Saddle Research Trust International Conference, was held at Anglia Ruskin University, Cambridge in November 2014. Presenting to a full house of around 400 delegates from varied quarters of the equestrian industry, the world’s leading veterinary and scientific experts, examined, discussed and debated the latest research on saddle-related equine welfare and performance issues.

Dr Sue Dyson from the Animal Health Trust discussed the causes of saddle slip and the implications of hind limb lameness as well as equine back and rider asymmetry. She went on to present the findings from studies undertaken with her PhD student, Line Greve, investigating changing back dimensions in ridden sports horses after exercise. Evidence suggests that thick pads and numnahs can constrict and interfere with the fit of the saddle and can prevent the changes in back shape that should naturally occur in the horse during exercise. Such under-saddle materials should be seen as an integral part of the rider/saddle equation when calculating fit and considering comfort.

Professor Christian Peham gave a fascinating insight into state-of-the-art animal movement science. He demonstrated how a biomechanical simulation method, based on real data, could assist vets as a clinical tool and delegates learned much more about the movement of the equine back and neck, through his 3D model.

Professor Lars Roepstorff and Maria Terese Engell explored the influence of the rider, emphasising that the horse is a partner in sport and, as such, needs a rider who prepares himself or herself with thorough appropriate fitness and core strength exercise. Dr Katja Geser-von Peinen then presented the effects of saddle design and function on rider and horse. She shared her fascinating work of pressure mapping and reiterated how the expert interpretation of results is key to success with this technology.

The final session saw Professor Renee van Weeren summarise the evolution of the human-horse relationship, drawing comparisons with other sports and emphasising that there is a huge amount of scope for more science to be used to improve standards on all levels. Olympic dressage rider, Richard Davison, ended by pinpointing which areas he specifically believed to have the most practical relevance for him as a rider as well as discussing the benefits of the research on a wider scale, urging equestrian organisations to take note.

Saddle Research Trust Trustee, Annie Pollock, summarised the take-home message from the conference, saying: “There are very real welfare and performance issues that can occur when the horse, saddle and rider interaction goes wrong. As horse owners, we need the practical skill of saddle fitters, the diagnostic ability of vets, the biomechanical knowledge of health practitioners, the expert eye of trainers and the highest standards in construction and design from saddle makers.”

Further details from the Saddle Research Trust Conference can be downloaded at [www.saddleresearchtrust.com](http://www.saddleresearchtrust.com)
Another report of anthelmintic resistance

Yet more evidence has emerged that resistance to fenbendazole among cyathostomin worms is widespread in the United States. Worryingly, even a five day course of treatment did not adequately control the faecal worm egg production.

The study was conducted by Maren Mason, who, at the time of the study, was a third-year veterinary student at the College of Veterinary Medicine, University of Georgia, Athens. The project was supported by a grant from Zoetis.

Participants in the study were drawn from 120 mares resident on a farm as recipients for embryo transfer. Animals were recruited to the study on the basis of an initial faecal worm egg count (FEC). Although samples were collected at a single site, the mares had travelled to the farm from premises in 21 states.

Horses with FEC > 200 epg were included in the study. In all, 82 horses were divided into two treatment groups. Half were treated with a single oral dose of moxidectin (0.4 mg/kg), the others were treated with a five day course of fenbendazole. (10.0 mg/kg)

Further FECs were performed 14, 45 and 90 days after treatment. On each occasion the results differed between the treatment groups.

The mean FEC of the moxidectin treatment group showed 99.9% reduction at 14 days and remained low throughout the study. Fenbendazole produced a mean reduction in FEC of only 41.9% after 14 days and had returned to pre-treatment levels by 45 days.

A full report of the study is published in the Journal of the American Veterinary Medical Association.

The authors conclude that, "given the diverse geographic origins of study mares, these results are likely representative of cyathostomin-infected mares in much of the United States, confirming previous findings indicating that fenbendazole resistance in cyathostomins is widespread and that moxidectin remains an effective treatment for control of these important parasites."

For more details see: