Repro Research Round-up

Volume 2, issue 1

CFER
Colloquium For Equine Reproduction

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Colloquium for Equine Reproduction 2015 meeting: raring to go!

Early plans for the 4th Colloquium for Equine Reproduction meeting, 2015, are well underway and an exciting programme is in place. Once again, the British Society for Animal Science (BSAS) have invited CFER back to be hosted within their annual conference. The BSAS conference takes place on 14th and 15th April. We will confirm soon which afternoon on those days CFER will be - do keep an eye on our website. This year the venue will be Chester University. There will be two CFER sessions. Firstly 'Advances in research' will be an opportunity to listen to the latest science conducted by world-renowned veterinary scientist, Dr Mandi DeMestre, from the Royal Veterinary College. Mandi will be presenting an update on risk factors associated with early pregnancy loss. Mandi's keynote presentation will be followed by short oral communications; if you would like to present any research you have recently conducted, whether at undergraduate level or beyond, please submit an abstract via the BSAS website. Abstract format and submission guidelines will appear there soon. Our industry based second session will be led by Jan Rogers, from the British Equestrian Federation, who will outline how the BEF supports breeding and research, particularly through MSc projects.

If you are coming to Chester, BSAS will also be running their annual equine-specific sessions the morning before CFER, which aim to share research findings in other areas of equine science. Speakers confirmed for 2015 include Dr Meriel Moore-Colyer (Royal Agricultural University), discussing advances in equine nutrition and Dr Celia Marr, from Rossdales and Partners, Newmarket, as the keynote speaker in the Equine Performance and Sports Medicine session. Well worth taking in while there!

bsas
british society of animal science

CFER Website

The CFER website address can be found at:
http://users.aber.ac.uk/dmn/cfer/Homepage.html
The site has also been updated so please do take a look.

BSAS Website

CFER conference details, registration and abstract submission guidelines, coming soon:
http://www.bsas.org.uk/events-conferences/

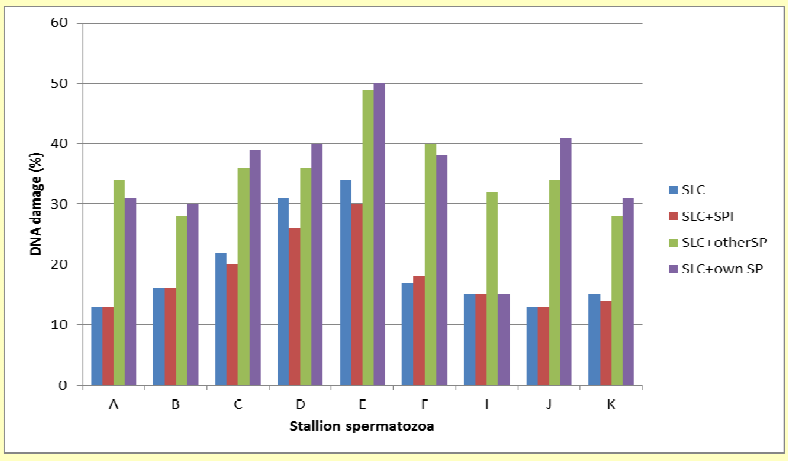
Effect of heterologous and homologous seminal plasma on stallion sperm quality

Professor Jane Morrell, Swedish University of Agricultural Sciences

A group of scientists at the Swedish University of Agricultural Sciences have recently published a fascinating paper in the journal Theriogenology.

The paper investigated the effects of adding seminal plasma back to spermatozoa that have had their own seminal plasma removed. Furthermore, the authors tested whether it was better to add the stallion's own seminal plasma (homologous) or that from another stallion (heterologous seminal plasma) back to the sperm. The authors used colloid centrifugation, which enables the removal of all seminal plasma and even seminal plasma proteins from the sperm surface. Therefore, the authors were able to add accurate quantities of seminal plasma to the sperm, thus only measuring the effects of the new seminal plasma. This method sets the current work apart from previous studies, and it was interesting that in doing this, the authors found several differences between their work and previous research.

The study firstly tested seminal plasma provided by one stallion added to the sperm of other stallions (the heterologous experiment). The heterologous seminal plasma increased the progressive motility and linearity of the sperm, amongst other factors, compared to samples without seminal plasma. However, there was a higher percent of sperm that showed increased stress factors and damage with the use of heterologous seminal plasma.



The effect of adding back seminal plasma to stallion spermatozoa that have had their own seminal plasma (SP) removed by SLC (single layer centrifugation). Individual stallions are labeled A-K.

Second, the study tested the effects on sperm when their own seminal plasma was added back (the homologous experiment). Interestingly there was high variation between different stallions. Some stallions' own seminal plasma improved aspects such as progressive motility, whereas others decreased these factors. Only one stallion's seminal plasma of nine animals tested did not cause damage to his own sperm's DNA structure. During storage. seminal plasma from this stallion did not damage other stallions´ sperm DNA either However, when a different stallion's seminal plasma was added instead, the spermatozoa were damaged.

This study shows just how much variability there is between stallions' seminal plasma. It could be suggested from these findings that certain stallions have the potential to be used as "universal seminal plasma donors", based on the benefits to the sperm in terms of motility and health. However, in order to do this, all original seminal plasma should be removed from sperm, including surface proteins, so that there are no deleterious effects from the original seminal plasma, supporting the use of colloid centrifugation.

Fungal endometritis in mares

Professor Tom Stout, Utrecht University

In October 2013 the University of Olzstyn, Poland, hosted European reproductive biologists at the 'Endometritis as a Cause of Infertility in Domestic Animals' workshop. The aim of the workshop was to define the path for future research into endometritis in species including the horse, sheep, pig and cattle. As part of this conference Professor Tom Stout gave a fascinating summary of fungal endometritis and its treatment in the mare.

Fungal endometritis accounts for less than 5% of diagnosed cases of equine endometrial infections. Opportunistic fungi such as *Candida spp*. are commonly isolated from infected individuals. Factors such as pneumovagina, persistent endometritis and repeated administration of intrauterine antibiotics frequently accompany a diagnosis of fungal endometritis as they cause chronic disruption of the uterine environment. As yet no treatment strategies have had widespread success and the prognosis for a speedy recovery and future reproductive potential is often poor. Fibrotic degeneration of the endometrium regularly occurs.

When embarking on a treatment strategy for fungal endometritis the causative organism and duration of infection must be considered, and the aim should be to simultaneously correct any predisposing factors (e.g. pneumovagina) and eradicate potential reservoirs of infection. The ideal time to treat fungal endometritis is during oestrus to allow effective drainage through the relaxed cervix. Prof. Stout has recently found that combining a single administration of 2% acetic acid with six consecutive day's treatment with clotrimazole gives better results than individual use of these agents, which rarely achieves a resolution rate of more than 20-30%. There is doubt over the penetration of systemic treatments to the uterine environment and these are rarely used.

Resolution of fungal infection is often followed by bacterial streptococcal endometritis that requires antibiotic treatment, and so often a vicious cycle arises. If initial treatments are unsuccessful, a period of rest can be surprisingly effective to allow spontaneous re-establishment of the normal uterine environment.

Candida albicans

CFER networking success

The CFER meeting is fast becoming a great place to meet people from industry, vets and academia, especially for our next generation of aspiring reproduction experts. One such success story is that of MRes Equestrian Performance student Ryan Aspinall from the University of the West of England. Ryan submitted an abstract to CFER 2013 outlining his undergraduate dissertation and presented a poster at the meeting. The study was an independent comparison of the ability of commercial extenders to prolong the viability of cool-shipped semen over time. One of our keynote speakers, Jos Mottershead from Equine-Reproduction.com spotted Ryan's poster and went and had a chat with Ryan. That little chat led to an invitation for Ryan to further his research by conducting his Master's Dissertation with Jos at his breeding centre based in Oklahoma, USA. So Ryan packed his bags and spent the 2014 breeding season with Jos and his team. Following his successful data collection in the USA, Ryan is currently writing up his thesis, so watch this space! Clearly, CFER is the place to be for students looking to extend their contacts and experiences in the breeding industry, and provides opportunities for scientists and those working in the industry to conduct research by sourcing enthusiastic and hard-working students! Well done Ryan and best of luck with your MRes!

equine reproduction

equine-reproduction.com

Contribute to Repro Research Roundup

Do you have an interesting news item and/or have recently had a paper published which you would like to tell the equine breeding industry? Why not feature in the next issue of Repro Research Roundup? If you have an item you think would be of interest to our readers, please contact Debbie Nash at Aberystwyth University (dmn@aber.ac.uk), and we can discuss including your suggestion in the next newsletter.

Colloquium for Equine Reproduction

PRIFYSGOL ABERYSTWYTH UNIVERSITY

CFER
Colloquium For Equine Reproduction

CFER aims to provide a central meeting place for researchers, vets, breeders, students and industry professionals to share ideas, experiences and create a network where these individuals can come to-

http://users.aber.ac.uk/dmn/cfer/Homepage.html