Issue 2

Bishopton Veterinary Group and Synergy Farm Health

RAFT BREEDING NEWS

Winter 2016

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In-vitro Fertilisation (IVF)

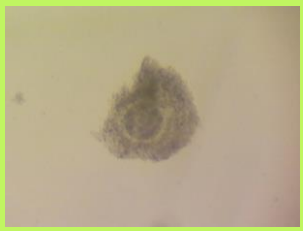
IVF is the process of creating embryos from unfertilised egg cells called oocytes. The oocytes are gently aspirated (sucked) from follicles found on the ovary by means of a fine needle guided by an ultrasound scanner probe placed in the vagina. This is called ovum pick up (OPU). The recovered oocytes are then matured and fertilised in the lab. Further maturation and culture take place in the incubator for approximately seven days resulting in viable embryos which can be transferred fresh into recipient cows or frozen for later use.

As with Embryo transfer (ET), IVF can be used to generate multiple offspring from your best cows. IVF can be used with success in cows that have previously responded poorly to conventional ET. At the same time IVF offers several advantages over ET, these include;

- **An increase in the genetic production rate.**
- **Less semen used per collection.**
- **More than one mating per collection.**
- **Increased frequency of collection.**
- **Collection during the first trimester of pregnancy.**

IVF should now be considered as a first line option when looking multiply your herd's best genetics. Residential facilities at our Wetherby site are available for cows which are booked in for multiple OPU sessions. Alternatively cows can visit the site on a day centre basis.

Charging is predominantly based on a per pregnancy basis and reflects the performance related structure of our conventional ET pricing.



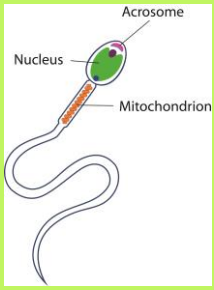
Oocyte

RAFT Special Offer!

SemenRate

Is your BULL really PACKING a PUNCH?

Some of the straws we have tested recently have shown up to a 50% variation in parameters trial – so potentially influencing fertility results on farm. We have a special offer on our SemenRate service for frozen straws for the next 2 months using Computer Assisted Semen Analysis (CASA) technology to help your find our whether the straws you have in your tank are ready to achieve optimum results. Only **£45** per analysis (£25 for herd health scheme members) (usual RRP £50).



DIY AI Courses

At RAFT we run monthly DIY AI courses. Get 3 great days packed full of information and loads of hands-on experience to benefit your farm, plus a refresher day! Contact the office to book your place now!


Jonathan Statham


Jon Reader


Neil Eastham


Mark Spilman


Dr. Andre Northey


Andy Adler


Rachel Hayton


Dr. Katie Burton


Becky Gage


Gareth Foden

Services we offer:

- Embryo Collection and Embryo Transfer
- Repeat Breeder
- Ovum Pick-Up (OPU)/IVF
- Bull Breeding Soundness Examinations
- Semen Collection
- SemenRate Evaluation Service
- Dye Testing
- Deep Uterine Horn Flushes
- Day Centre/ Livery for Bespoke Programmes
- Semen and Embryo Storage

For more information contact us on 01765 645893

A bit about the team…

Jonathan Statham

RAFT's Chief Executive Jonathan Statham, graduated from Cambridge University in 1996. He joined Bishopton Veterinary Group in 1998 and is a partner of the practice. Jonathan is Past President of the BCVA and the YVS. He is an external examiner at Liverpool University and also a member of the Nottingham Dairy Herd Health Group, the 'Farmskills' steering group and the International Embryo Transfer Society. Jonathan's main interests include reproductive technologies, nutrition, mastitis control, progressive herd health and production management. He holds the RCVS Diploma in Cattle Health and Production and is a RCVS recognised specialist in Cattle Health and Production.

Jon Reader

Jon is from a family dairy farm in Norfolk and graduated from Bristol University in 1997. In 2010 Jon completed the Diploma in Cattle Health and Production awarded by the RCVS. Jon is interested in the prevention and control of lameness on dairy farms and holds the NPTC Level 3 certificate in cattle foot trimming and is also a trainer for AHDB Dairy mobility mentoring scheme. Jon is also on the Executive board for RAFT and is involved with bull testing and collection as part of the breeding team.

Andy Adler

Andy was brought up in East Anglia where he ran a smallholding of 100 ewes with his mother. After graduating from Edinburgh University in 1997, he spent two years in a mixed practice in the Towcaster area. The next four years were spent travelling and working as a Vet in Australia and New Zealand where he developed a key interest in the NZ Dairying systems, maximising production from limited resources. Since returning to the UK Andy has completed an MBA increasing his understanding of the dairy sector and has created a global perspective to his work. In addition to his day-to-day clinical work and training responsibilities, Andy carries out bull tests and collections.

Rachel Hayton

Rachel graduated from Edinburgh in 1993 having also completed an honors degree in Pathological Sciences, and obtained her Certificate in Cattle Health and Production in 1998. The majority of her time is spent carrying out routine fertility visits for dairy clients and looking after all aspects of herd health and preventative medicine. One of her passions is carrying out mastitis investigations, and monitoring the effect of control measures. Rachel is interested in all aspects of dairy and beef cattle, particularly mastitis, fertility and infectious disease, and carries out bull fertility testing for both beef and dairy clients.

Gareth Foden

Gareth originates from rural Shropshire where he saw most of his farm practice. He qualified from the Royal Veterinary College in 2011 and started work as an RVC intern at Synergy Farm Health in Dorset; he was then employed by the practice as a junior clinician in 2012. Since joining the practice Gareth has developed a particular interest in cattle lameness and has become an AHDB Dairy mobility mentor. He also runs several foot trimming courses each year and is heavily involved with the teaching of the 200 vet students that pass through the practice annually. As well as his daily responsibilities, Gareth is part of the RAFT breeding team carrying out bull tests and collections.

SemenRate Analysis Service

SemenRate is a new service using a novel combination of Computer Assisted Semen Analysis (CASA) and Flow Cytometry giving a semen evaluation service (fresh and frozen) that is objective and repeatable with a high degree of accuracy.

Why use it?

Before now, tests have relied on microscopy and the human eye to assess whether bull semen is good enough to use.

From now, SemenRate can objectively assess different parts of the sperm using flow cytometry so that essential features such as acrosome integrity (the part of the sperm needed to get through the egg wall so fertilization can take place) are evaluated as a routine procedure.

SemenRate is therefore as essential tool that progressive cattle breeders should use for:

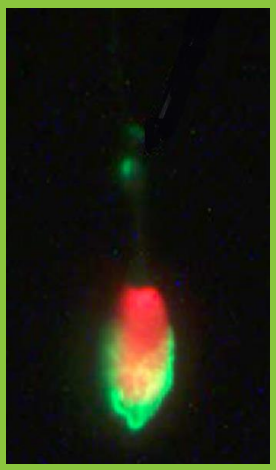
- Screening high value semen prior to use in high value Embryo Transfer (ET) or Ovum Pick Up (OPU)/In Vitro Fertilisation (IVF) programmes where **semen quality** is essential to success.
- Screening the quality of **batches of AI semen** that may have been in multiple semen storage tanks prior to coming into your tank or have been in your storage tank for a long period of time prior to use.

  Semen quality may **deteriorate** the longer the 'cold chain' is and the more times it is handled. Ensuring it is still of good quality prior to use will give you peace of mind that the semen is capable of the performance you expect.
- Testing of fresh extended semen samples as part of a bull breeding soundness examination from bulls that are:

  Pre breeding: to give you greater information on which to base your breeding decisions.

  Pre-sale: to give you results that are totally objective and results held on computer for future reference if required.

  Suspect infertility: the sensitivity of the testing protocols may detect abnormalities that may not be picked up on in the 'standard' subjective measurements.

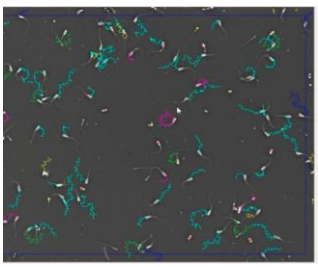


Semen stained for Flow Cytometry analysis

CASA (Computer Assisted Semen Analysis)

Calculates:

- Concentration
- Motility
- Kinematic measurements
- Morphometry
- Morphology

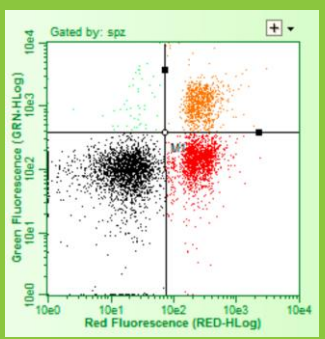


CASA motility analysis

Flow Cytometry

A flow cytometer detects and measures sperm as they pass through a sensing region. Sperm are stained with fluorescent dyes and can be divided into different populations.

- Viability and concentration
- Level of reactive oxygen species
- Acrosome integrity
- Mitochondrial activity
- DNA compaction



Flow Cytometry analysis

All the parameters measured above can have an influence on semen performance and by utilizing the information gathered from the two techniques, accurate assessment of semen quality can take place.

Donors and Embryo Collection

Planning ahead and paying close attention to detail are hugely important when looking to maximise success from embryo transfer programmes. With respect to the donor the following are the most important points to consider;

Selection

The best results are achieved from maiden heifers (at least 14 months old for dairy and 16 months old for beef) and young cows. Prospective donors must have a good breeding history with no record of ill health or poor fertility. Fewer embryos will be collected from older cows (over 10 years of age).

Health and Fertility

Prospective donors should be at least 10 weeks calved (14 wks for high yielding dairy cows), clean and cycling normally (ideally 2 heats observed). Target body condition scores are 2.5 and 2-3 for maiden heifers and cows respectively.

Management

A controlled management system should be in place six weeks prior to flushing. AVOID CHANGE WHEREVER POSSIBLE. Donors should be housed in small groups with a large emphasis on cow comfort. Stressful events such as spring turn out, autumn housing, foot trimming, worming, vaccinations, mixing of groups and showing should be avoided in the run up period.

Nutrition

Plan the nutrition for the entire management period and avoid change wherever possible. Over conditioned donors or those in poor condition losing weight have poor responses to superovulation. Ideally donors should be on rising plane of nutrition, this is especially important with respect to energy and fibre. The addition of beet pulp to the diet for at least four weeks prior to the programme can be beneficial. Feeding long fibre is advised, this can be achieved by feeding hay, haylage, big bale silage and straw. Large quantities of concentrates should be avoided (no more than 4kg at any one time) as should high protein feeds such as young grass. In fact, the management of the donor at grass is difficult due to the unpredictable quality of grass, this can be low in fibre and it is difficult to measure intakes. Mineral supplementation is important and can be provided in the form of buckets, powder supplements, licks and boluses. Cosecure boluses every three months are recommended for copper, selenium and cobalt (take care with additional supplementation of copper by other routes; copper toxicity is possible).

Infectious Disease

It is important to appreciate that diseases such as IBR, BVD, leptospirosis and Johnes disease can have implications on the success of flushing. Veterinary advice is always available on this subject. Through testing, the disease status of prospective donors can be determined.

Semen choice

It is important that this is of good quality so that this is not the limiting factor when flushing. If feasible it is advisable to test thaw a straw of semen pre use. At least three straws of semen should be used for each donor, using more than this is often unrewarding unless donors are bulling for longer than expected.

Embryo

Our vet Mark carrying out an embryo collection

Why not visit our Facebook and Twitter:
www.facebook.com/raftsolutions
www.twitter.com/RAFTtraining