



## REPRODUCTION & FOALING

**Minster Equine** are a team of experienced vets offering reproductive services in North Yorkshire. We offer AI breeding packages and foaling services for those looking to breed from their mares.

From first-time breeders to experienced professionals, we have the knowledge and facilities to achieve a successful pregnancy and foaling. We can assist you with managing your mare's cycle for natural covering or artificial insemination whether that is using fresh, chilled or frozen semen.

Our purpose built veterinary clinic in Poppleton, York has all of the facilities you'd expect to find at a BEVA Approved AI centre. We also have provision for the storage of frozen semen and an in-house laboratory for processing and assessing semen quality and motility.

Reproductive work can be carried out at home or mares can visit the clinic as an outpatient. Owners may choose to leave their mares with us for a number of days to ensure that they are inseminated at the optimum time. We have the facilities to accommodate this with stabling

and grazing on-site under 24-hour supervision by our veterinary team.

### We offer the following reproductive services:

- Pre-breeding tests and routine mare work
- Artificial insemination
- Embryo transfer
- Infertility investigations
- Frozen semen storage
- Twin management
- Caslick's operations
- Oviduct treatments
- Foaling
- Foal and Youngstock care.

### Pre-breeding examinations

A pre-breeding examination is essential to evaluate the mare to check there are no abnormalities that may reduce her fertility.

Routine pre-breeding assessment includes swabbing mares before

covering; mares require a clitoral swab prior to natural service or AI to look for any venereal bacteria.

Some studs will also require a blood sample to ensure the mare is negative for EVA (Equine Viral Arteritis) and EIA (Equine Infectious) using a Coggins Test. A clitoral swab can be taken at any time during the breeding season but before the mare is to be covered, and the EVA blood sample should be taken within the 28 days prior to being covered. All mares entering our AI programmes have a clitoral swab and blood test for Equine Viral Arteritis (EVA) included in our package fees.

It is strongly advisable that mares also have a cervical or endometrial swab. This swab can only be taken if the mare is in season. The cervical swab checks for the presence of bacteria inside the uterus and for non-infectious inflammation. The swab should be taken in the first day or two of the in-season period; this allows time to treat any problems before the mare goes out of season. All mares entering our AI programme have a cervical swab included in the package fees.

## Artificial Insemination

Artificial insemination is where the semen is placed directly in the mare's uterus. AI is the most popular choice for breeding sport horses. It remains the safest way to breed for both mare and stallion with excellent rates of conception. Successful outcomes of AI require knowledge and manipulation of the mares breeding cycle by experienced veterinary surgeons.

**Fresh semen** - The semen is collected from the stallion and inseminated in the mare almost immediately. The semen may be combined with extender. This option is best used for mares who have reduced conception rates or stallions with reduced semen fertility.

**Chilled semen** is collected, processed and slowly cooled to 4-6°C. to preserve the fertility of the sperm. It can be transported in a temperature controlled container both nationally and internationally.

**Frozen semen** is collected and processed before being cryopreserved to -197° using liquid nitrogen. The sperm remain viable for an infinite period as long as they are stored correctly. Breeders are able to use stallions which are still competing, based abroad or even deceased. The semen is transported in liquid nitrogen well in advance of the mare being in season and is stored at the clinic until it is required. Mare owners may choose to leave their mare at the clinic for insemination so that they can be monitored closely and inseminated at the optimum time.

Once a stallion has been selected and the contract arranged with the stud, the mare is examined by ultrasound to assess where she is in her oestrus cycle. Once in season, daily ultrasonography of the ovaries monitors the development of a dominant follicle (>35mm). Ovulating agents are administered to stimulate the follicle to ovulate.

With fresh or chilled semen, the semen is usually ordered 24-36 hours before it is required. Good communication and an

experienced veterinary team is essential to ensure that the chilled semen is ordered and arrives at an appropriate time for the mare. On arrival, the official paperwork is examined to ensure the semen is correct and free from disease and it is inseminated straight away directly into the uterus.

Frozen-thawed semen has a relatively short life span and therefore mares are inseminated immediately before or after ovulation. Ovulating agents are administered between 4pm and 8pm later that day to stimulate the follicle to ovulate. The mare is then re-examined at 7am the following morning. Most mares will ovulate between 7am and 1pm on the second day after injection. Insemination is carried out as close to ovulation as possible by the *deep uterine* technique. This technique involves passing a flexible pipette through the cervix into the uterus and guiding it to the tip of the horn at the same side as the ovary that will imminently ovulate.

After insemination, a small sample of semen is retained for quality and motility assessment. The mare is then examined 6-12 hours later by ultrasound to confirm ovulation and examine the uterus for post insemination fluid accumulation. The latter is treated by intrauterine flushes with sterile saline and intramuscular oxytocin injections.

## Natural covering

Mares can be managed in a similar way even when natural covering is being performed. Natural covering introduces dirt, debris and contamination into the uterus along with the sperm. To reduce the risk of infection, the number of coverings should be kept to a minimum and mares should have their vulva cleaned with fresh water and their tail bandaged prior to covering.

Managing a mare in the same way as artificial insemination will ensure the mare is covered close to ovulation and allow for any post cover inflammation to be managed most effectively.

## Embryo transfer

Embryo Transfer is the process in which a mare conceives an embryo which is then

flushed from the uterus and placed into the uterus of a recipient mare.

The biological dam (the 'donor') is prepared in the same way as is normal for routine breeding work. If the insemination is successful, an embryo is flushed out of the uterus and placed into a recipient mare after 6-8 days. The recipient mare should also have careful veterinary management to ensure that her reproductive cycle is synchronised to the donor mare in order for her to successfully carry the embryo.

A pregnancy scan is performed at 7 days post transfer and subsequent scans are then performed to confirm a heartbeat and that the pregnancy is progressing as it should.

Previously, the stallion has been the one able to both compete and produce a number of offspring during the breeding season. Embryo Transfer enables a breeder to continue a valuable bloodline much more quickly whilst still building on the dam's success in sport. Further benefits include being able to obtain more than one pregnancy in a breeding season, and the ability for a mare that cannot carry a fetus to term to produce a foal.

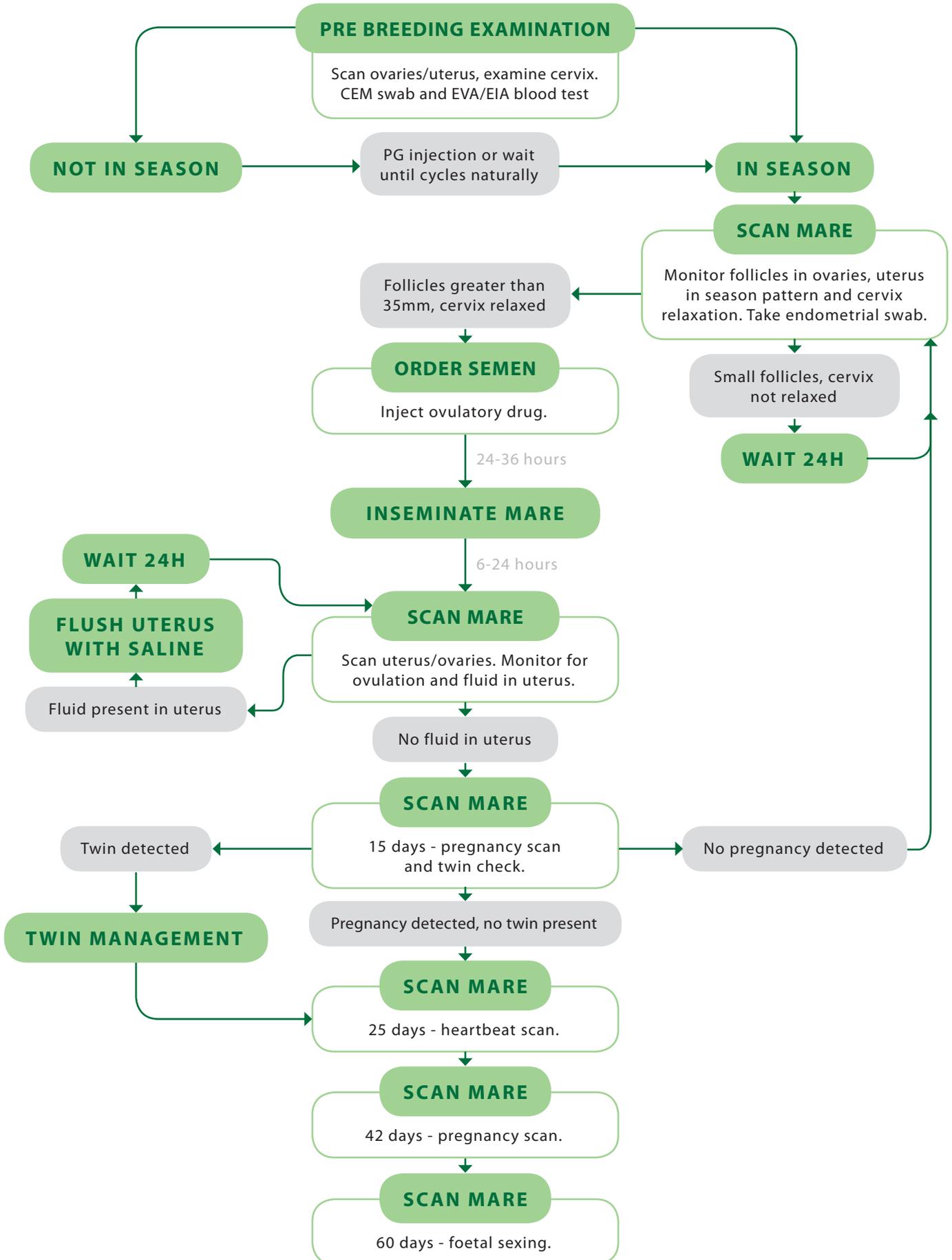
## Pregnancy scans and twin management

Ultrasonography is performed 15 days after ovulation for pregnancy diagnosis and for the assessment for twin pregnancies. If twins are detected, one pregnancy is aborted prior to being 17 days old to reduce the risk of embryonic loss to both pregnancies. Mares rarely maintain twin pregnancies due to the structure and size of their placenta as the pregnancy develops.

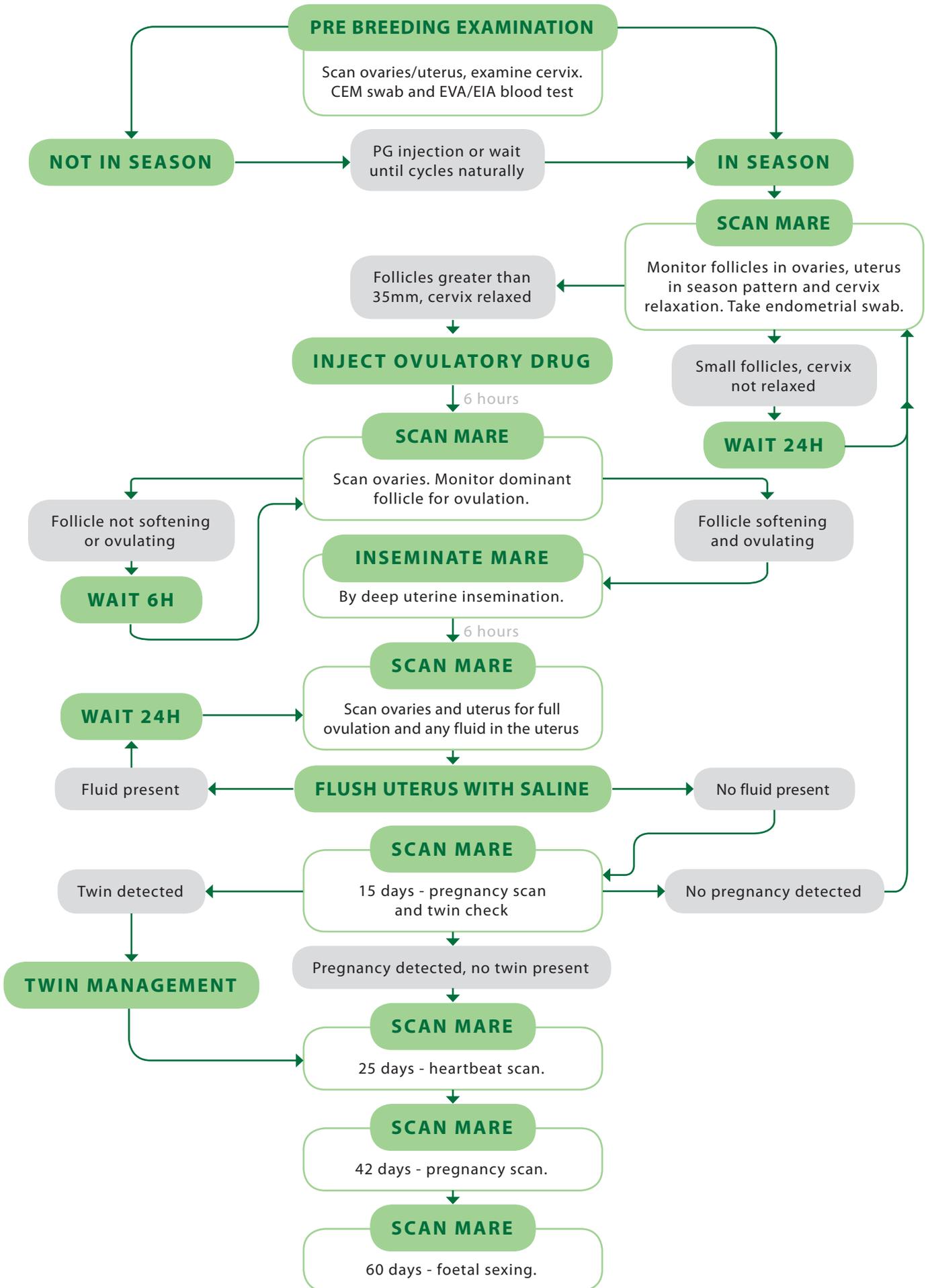
If a pregnancy is detected, repeat ultrasonography is performed at 26-30 days gestation for detection of a heartbeat, and at 42 days gestation to monitor fetal development. Most early pregnancy loss occurs prior to 42 days and so a positive result at this stage has a reasonable chance of making it to term.

Ultrasonography at 60 days gestation can be performed to determine the fetal sex.

**CHILLED SEMEN ARTIFICIAL INSEMINATION**



**FROZEN SEMEN ARTIFICIAL INSEMINATION**



## Foaling

The average length of pregnancy in the mare is 338-343 days. There are a few signs to look out for which can help to determine how close your mare is to foaling:

- Softening of the muscles in the croup
- Relaxation of the vulva, the tailhead appearing more prominent
- Changes in the position of the foal
- The udder may begin to fill up with milk 2-4 weeks before foaling
- Distension of the teats
- Waxing of the teats, (1-4 days prior to delivery)
- Dripping of milk



### The process of foaling itself can be divided into three stages:

#### First stage - foal moving into position

The mare may appear to show signs of colic, getting up and down a lot and sometimes rolling. This activity assists the foal getting into position, ready for delivery. The foal enters the pelvis during this stage.

The placenta may be visible at the vulva. A normal placenta is a pale colour. However, if a red placenta is seen, this is known as a 'red bag delivery' and it is where the placenta has begun to separate from the uterus without expulsion of the foal. If a red bag is seen prior to the foal or is present over the foal at stage 2, it must be torn and opened to allow the foal to pass. The foal must be readily delivered as the placenta has begun to separate and oxygen supply to the foal will be reduced.

#### Second stage - expulsion of the foal

Second stage labour begins once the waters have broken. The foal should be delivered within 30 minutes. The normal foaling position is two hooves, one slightly in front of the other, facing down (front feet, compared to hind feet facing upwards), followed by a nose.

This stage of labour should continue to progress with gradual expulsion of the foal. If there is no significant progress within 10 minutes then the mare will require assistance.

#### Third stage - delivery of the placenta

The placenta should be delivered within 3 hours of foal delivery. All placenta external to the mare should be tied up with baling twine. This creates a weight to assist with delivery of the placenta. It also prevents the placenta from being torn to allow accurate assessment once it has been delivered.

If the placenta is not delivered by 3 hours post foaling it may need assistance to be removed. 2mls Oxytocin by IM injection can be given. The placenta must be removed by 6 hours post foaling.

Examination of the placenta is to ensure that none is retained. The placenta is laid out into a T-shape with cervical star at bottom, pregnant horn and non-pregnant horn. It is usually the non-pregnant horn that is retained. If the placenta has been retained, the mare may require a uterine flush.

Maiden mares (those that have not had a foal before) tend to be more difficult to assess than those who have had previous foals. Our in-house foaling service can be useful whether this is your first foal or you are an experienced breeder looking to take the stress and sleepless nights out of 'foal watch'.

#### Post Foaling- the foal

The stable should be kept warm and extra rugs may be necessary in very cold temperatures. The distal limbs are a good indication if the foal is warm enough. Foals are usually very active; shivering is normal and they can have a high respiratory rate (80bpm).

After delivery, the umbilicus will usually break on its own at the weakest point. The naval should be dipped with 4% chlorhexidine or povidone iodine.

Attempts to stand are usually made in minutes and they may begin mouthing or sucking movements. Foals usually stand within 30 minutes but sometimes it can take 1-2 hours. Once they have gained balance, they begin to search for the udder. The foal should have suckled within 4 hours of being born - it may be necessary to defrost some colostrum if this hasn't happened. A foal obtains all of its immunity through the mare's colostrum in the first 24 hours of birth, so it is vital that the foal is feeding within the first 4 hours.

Foals feed approximately every 2 hours and in-between have periods of high activity and sleep.

Within a few hours the foal should pass urine and meconium. Some people encourage meconium passage by the routine use of a phosphate enema (Fleet™). This is included in our foaling service fee. Meconium is dark in colour and it can take several passes until the lighter yellow faeces are apparent. If meconium isn't passed, the foal may develop colic.

Foals should be vet checked after 18 hours of birth - a blood sample can be taken after 18 hours to measure IgG (immunity) to determine if they have transferred antibodies from colostrum. An IgG test is included in our foaling package fee.

### Infertility Investigations

Sub-fertile mares include those that have been covered more than three times in the previous season without a successful pregnancy or those mares that were scanned in-foal but later suffered embryonic loss. Continuing to breed from these mares without appropriate investigation becomes a false economy.

Initially we take a comprehensive breeding history of the mare including her age, breed, number of cycles bred during the last season, date of last breeding, breeding technique used, number of previous foals, and any history of abnormal cycles, uterine infections, embryonic loss, or abortion.

A full breeding soundness exam is then performed. This consists of an examination to assess perineal conformation. Poor perineal conformation or trauma during a previous foaling may compromise the vulval seal, increasing the incidence of air being taken into the reproductive tract, increasing the likelihood of an infection. An examination of the reproductive tract is also performed with and without ultrasound, allowing any abnormalities or inconsistencies between the ovaries, uterus and cervix to be noted. An endometrial/uterine swab may be taken to determine the presence of uterine infections.

Endometrial biopsies can provide valuable information about uterine

disease and can be used as a prognostic indicator of the ability of a mare to carry a foal to term. Bacterial culture can be performed on the biopsy tissue, determining if infection is present. Endometrial biopsies are examined for the presence of inflammation and degeneration of the uterus.

Uterine endoscopy (hysteroscopy) is a useful diagnostic tool allowing complete visualisation of the interior uterus, vagina and cervix. It is usually carried out in early oestrus or just after ovulation and allows the diagnosis of uterine cysts or uterine adhesions.

If no abnormalities are detected then it is advised to attempt to flush the oviducts as a blockage or inflammation (salpingitis) may reduce fertility.

### Packages

Our competitively priced breeding packages are ideal for those looking for the most cost-effective way to breed from your mare. Work can also be undertaken on a 'pay as you go basis'. For a comprehensive service, mares may reside at our clinic when she is close to insemination or a service can be provided at home to ensure she remains relaxed in her own surroundings.

Our AI schemes cover the cost of all the routine veterinary work required to help get your mare in foal. The scheme also covers the monitoring of early pregnancy once it is achieved.

It covers the essential and compulsory work such as swabbing, blood tests, scans and ovulatory drugs required for a fixed fee.

Minster Equine also offer a comprehensive foaling service at our purpose built clinic where your mare will be monitored 24 hours daily. An experienced veterinary surgeon will always be present to assist your mare during foaling.

We advise that a mare should be brought to us 2-4 weeks before her foaling date and that she stays for 2 weeks after the foal has arrived.

Clients bringing their horse for foaling are entitled to an extra 10% discount on our AI schemes within 12 months of foaling.

For more information and prices please contact us at the clinic:

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