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Equine Reproduction

Horses are seasonally polyoestrus long day breeders. This means that most mares cycle between September and March and tend to 'shut down' reproductively over winter (although some mares cycle year round). Coming out of winter mares experience a transition phase before they start cycling normally for the year. A mare must be out of the transitional phase and cycling normally before we can attempt to get her pregnant. Mares should be kept in good body condition and not allowed to get too fat to ensure correct onset of cycling and optimal fertility.

In order to become pregnant a mare must release an ovum ('egg') from a follicle from her ovary. Each ovary contains many, many follicles. Follicles are fluid filled cyst-like structures. Each cycle, one (sometimes two) follicles will grow larger than all the others and become the dominant follicle - this is the follicle that will ovulate and release the ovum. After ovulation, the follicle will collapse and form a CL (corpus luteum) - the CL produces the hormone progesterone.

Basically, when a mare has large follicles, no CL and is receptive to a stallion, the mare is 'on heat'/in season. This period of the mares cycle is termed **oestrus**. This is when we want to breed the mare to ensure we have a chance of getting her pregnant. The oestrus period normally lasts **5-6 days** and the entire cycle length is **21 days** (3 weeks).

Steps to follow:
Mares should be less than 15 years of age and ideally less than 10 when they have their first foal. As mares age their fertility drops dramatically and the risk of complications (infections, foaling difficulties) increases.

1) Ensure you can accurately tell when your mare is in heat (receptive to a teaser stallion or showing oestrus behaviour - squatting, squirting urine, winking her vulva). If not, a pre-breeding ultrasound should be performed by a veterinarian to determine what stage of her cycle she is at. The mare must be restrained in either a set of stocks/mare crush or in a confined space in front of a solid waist - chest high barrier. There must be access to power and ideally the area should be undercover (no sun shining when looking at the ultrasound screen). A reproductive ultrasound is performed by the veterinarian placing his/her hand plus the ultrasound scanner into the mares rectum, so safety for both the horse and the vet is a priority. After the scan the vet may give your horse an injection to make her come into heat (PG or prostaglandin injection).
This scan is also useful to ensure no abnormalities are present in the reproductive tract.

2) Decide what type of semen you would like to use for the AI (artificial insemination). This is determine by a) Which stallion you would like to breed with your mare and b) The age / fertility of your mare. In general the higher the cost / input of the insemination (frozen>chilled>natural/fresh), the lower the chance of a successful conception per cycle!

- Fresh semen: Fresh semen provides the highest chance of conceiving a pregnancy, however relies on direct access to a stallion. Mare may either be paddock served (run with the stallion), hand served (person holding both mare and stallion - more controlled environment than paddock serving, but potentially dangerous to the people involved) or semen may be collected from a stallion that is trained to use a 'dummy' mount and the semen is immediately filtered, extended and then administered directly into the mares uterus by a veterinarian (reduced risk of uterine infection and reduced risk of injury to the mare and stallion).

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- Chilled semen: Higher costs and labour input than fresh semen use. Relies on access to a stallion within Australia that can have semen collected, chilled and sent by courier to your place or our hospital. Insemination must be timed closely to the time of ovulation and thus requires daily (at least) ultrasound exams during the mares oestrus period and the use of drugs to help predict the time of ovulation.

- Frozen semen: Higher costs and labour input than chilled semen. Relies on access to semen frozen in 'straws' (may be from Australia or overseas). Semen must be transported to and stored in a liquid nitrogen tank prior to getting the mare ready for insemination. Insemination must be timed to within 6 and preferably 3 hours of ovulation thus requires intensive management and frequent ultrasound scans.

- Embryo transfer: Please speak to our veterinarians regarding this procedure.

Note: There is no guarantee that your mare will get pregnant first time.
We aim to maximise the chances of a pregnancy by using appropriate timing and management. However there is an innate chance of unsuccessful pregnancy/risk of failure for each type of insemination that is unavoidable and dependant on semen quality (increased by chilling and even further with freezing) and this is also affected by stallion/mare fertility.
As a guide only (success rates may be higher or lower for individual animals):
Fresh semen - 80-85% chance of success per cycle.
Chilled semen - 70-75% chance of success per cycle.
Frozen semen - 50-60% chance of success per cycle, where success is conception of a pregnancy.

Pregnancy diagnosis:
A rectal ultrasound scan should be performed **day 15, day 30** and **day 45** post insemination/ovulation. The post breeding scans are used not only to confirm the absence/presence of a pregnancy, but to check for the presence of **twin** pregnancies. Mares are not usually able to successfully carry twin pregnancies to full term and deliver two live, healthy foals, thus one of the twins must be destroyed early on (within the first 20 days of pregnancy) to ensure the health and safety of the mare and remaining foal.
If a mare is determined not to be pregnant she may be given an injection to bring her back into oestrus for another insemination cycle.

Pregnancy duration is 335-342 days (11 months approx) but may range from 305 - 400 days.

Management of the pregnant mare:
Pregnant mares should be **wormed** throughout gestation. Any 'mectin' based product is usually safe but ideally only a product should be used that states on the label it is safe for use in pregnant mares.
Pregnant mares should be given a 2in1 booster **vaccination** in the last 1-2 months of gestation (and should be up to date with this prior to service), the booster will ensure adequate levels of immunity against tetanus and strangles are passed to the foal and the mare is protected from fatal diseases (tetanus).
Pregnant mares should be on a good plane of **nutrition** but should not be allowed to get over fat as this may make foaling difficult and predispose to laminitis/founder. Ensure access to roughage/hay (amount of at least 1-2% of body weight per day). A trace mineral/vitamin supplement should be given during the last 3-4 months of pregnancy. Regular attention should be paid to **hoof care** to prevent injuries and lameness as the marked increase in bodyweight seen in late pregnancy will put a strain on feet.

If you have any further questions please do not hesitate to contact us on **9739 5244**.