

Managing Early Pregnancy in the Mare.

By Dr. John Kohnke BVSc RDA

Some mares breed easily and get in foal with minimal returns to service, whilst others have difficulty in conceiving and maintaining an early pregnancy, with a continued risk of early embryonic abortion (EEA) and foetal resorption. As a mare ages beyond 14 years of age, her fertility begins to naturally decline and in older mares, the risk of developing low grade uterine infection also increases, resulting in mid-term abortion. **Chronic uterine infection, often related to an excessively sunken-in or 'ski slope' vulva, which facilitates vulval windsucking during exercise, cervical damage from a previous foaling, deterioration of the uterine lining as a mare ages or suffers repeated infection or endometritis, combined with reduced uterine immune defense as a mare ages, can all contribute to the difficulty of getting older mares in foal and avoiding early embryonic loss.**

The risk of EEA is also increased if the energy intake in a mare is suddenly reduced by as little as 20% for 4 consecutive days during the first 65 days after conception, particularly in a mare which is in borderline condition or being transported over a long distance and exposed to relocation stress.

HANDY HINT 1: FIRST 90 DAYS OF PREGNANCY IS A HIGH RISK PERIOD

Ensuring an adequate intake of energy during the first 65 days after conception, and up to 90 days of pregnancy, is a critical period for maintaining optimum nutrition of the developing foal and reduce the risk of EEA. A 20% lower intake of energy for as short as 4 days during the first 65 days after conception, can result in EEA. For most mares after the first 3 months of pregnancy, even when they are stressed by lower energy intake, there is a low risk of a mare slipping her foal, especially in young, healthy mares.

Pre-Breeding Nutritional Management

It is important to provide an adequate and balanced diet for mares during the last 4-6 weeks before they are to be bred.

Dry Mares

Mares destined to be bred should be in a medium, fleshy condition (Condition score 2.5-3) with an adequate covering over their ribs and hip bone, as well as have 'bloom' in their coats.

It is considered an advantage by many breeders, although not backed up by definitive scientific studies, to start with a mare in lower condition (Condition score 2-2.5) about 4-6 weeks before the breeding season and provide additional energy as grain (eg oats) to help the mare gain condition on a rising plane until the time she is bred. Many breeders believe that it is also associated with a higher proportion of filly foals. Most mares at grass over winter will often be in a lower condition score, and although the flush of spring grass after the break of the season will help a mare to naturally gain condition, it may be too late to achieve the ideal breeding condition score as early as possible in the breeding season so that she has the best opportunity to get in foal.

HANDY HINT 2: SUPPLEMENT WITH VITAMIN E AND SELENIUM

It is also worthwhile to supplement dry mares during the last 4 weeks prior to breeding with a supplement of Vitamin E and selenium. Although, there are 4 main micro-nutrients which can affect fertility if they are low or inadequate in the diet, including phosphorus, selenium, Vitamin A and Vitamin E, in most cases, selenium and Vitamin E are often the limiting nutrients in pasture and grain based diets. A product, such as E-Se Supplets™, in pelleted form, which provides 1000IU of Vitamin E and 1 mg of organic selenium per 15g scoopful, is popular with many breeders. The small pellets do not sift out of grain mixes, sludge in the feed bin or blow out of the paddock feeders. A small 1.4Kg pack is enough for 3 mares weighing an average of 500kg as a daily supplement for 1 month prior to breeding.

Lactating Mares

The major underlying cause of reduced conception and EEA in lactating mares, especially when a mare has a foal at foot, is a lack of energy in the diet, when the mare is at her peak of lactation 4-12 weeks after foaling and the energy drain of lactation, reduces ovarian activity to suppress fertile season cycles, and in some cases, an inadequate intake of protein on cereal based pasture, grains and hays. Although, there is a 25% chance of a mare conceiving when bred on her foal heat, most breeders only breed on foal heat towards the end of the breeding season if the mare foals late in the season. The scenario can occur in which a mare may be in reasonable condition at foaling, have an intense foal heat, but at the peak of her lactation, reached between 4-12 weeks after foaling, the energy (and protein) drain of providing 15-20 litres of milk per day (in a 500kg mare) to her foal, can result in a negative intake of energy, causing her to rapidly lose body condition to maintain her milk production.

A lower than adequate energy intake in a lactating mare can result in an initial reduction in ovarian activity (and fertility), with complete shutdown of cycling in mares on a low energy diet, followed by loss of condition or body weight and then milk production.

Some mares virtually give all they have in reserve to maintain milk production and feed their foal, causing them to lose body weight and condition score. This in turn, results in a shutdown of ovarian activity and the opportunity to be bred and conceive. Unfortunately, in a mare on a negative plane of nutrition, with inactive ovaries, injections of prostaglandin or other forms of hormone stimulus to increase ovarian activity and ovulation, have a greatly diminished effect and may be unrewarding in initiating an oestrus cycle suitable for breeding.

Feeding the Lactating Mare

It is essential that a lactating mare is provided with an adequate intake of energy to maintain her body condition, as she reaches and progresses through her lactation peak, which coincides with the time that she is attempting to get back in foal to maintain a 12 month commercially viable foaling interval. In most cases, simply providing an additional energy boost to a mixed feed by adding 2-2.5Kg whole oats (or about 1Kg per 200Kg body weight) is an economical and effective way of boosting energy, with the balance of the diet provided by the hard feed, chaff and hay.

HANDY HINT 3: MAINTAIN ENERGY INTAKE IN LATE FOALING MARES

Mares which foal late in the season are likely to have a lower energy diet. The drying off of pastures over the summer and early New Year in many areas can result in a drop in energy intake in all mares, and wet mares at lactation peak are particularly affected. Mares which are between 21 to 65 days in foal, especially wet mares already in poor condition or subject to energy drain due to heavy lactation, are particularly prone the effects of reduced dietary energy intake, which can result in a high incidence of early embryonic abortion (EEA).

After a mare has been served or inseminated, and has gone off season, it is important to feed her an adequate amount of energy (and protein) to maintain her body condition in early pregnancy.

Did You Know That.....

Studies have shown that a reduction in energy intake in early pregnancy by as little as 20% below her daily minimal need, especially in a mare already under nutritional stress at the peak of lactation, can result in death of the new developing conceptus or foetus within 4-6 days. A short term, but critical reduction in energy intake for as little as 4 consecutive days before, during and after the implantation period, can be caused by a number of relatively simple factors.

These include loss of grazing time for 4-5 days following a week of rain and showers resulting in soggy, wet, short pasture; long distance or extended delays during transport of the mare from the stud to an owners' property; sudden changes in the feed blend (a change from grain based feed to a pelleted feed); poor quality hay, as well as an upset of mare social order with bossing of newly returned early pregnant mares away from feeders by other resident mares, all over shadowed by extreme weather conditions for a few days and/or the drying off of pastures over a 4-7 day period.

It is also possible that extreme physical, transport and environmental stress during this period, could result in higher blood cortisone levels, which could also affect the viability of the developing conceptus in the first 45 days after conception. **The high risk period is between 21-65 days of pregnancy, with a lesser risk up to 90 days of pregnancy, and once past 90 days, the pregnancy is usually well established and secure and less influenced by a marginal energy intake relative to need.**

Implantation in the Mare

Mares, unlike most other domestic animals, have a delayed implantation time or period in early pregnancy where the foetal membranes develop and attach onto the uterine wall and the placenta is established. This occurs between 45-60 days after conception and is thought to be a 'safety' mechanism to enable the developing conceptus (before implantation) and foetus (after implantation) to be safely resorbed or aborted if the energy intake is suddenly reduced due to changes in seasonal conditions, which could ultimately affect food availability. **In this way, a mare can abort her foal and save her own life, or at least be able to feed her foal at foot during harsh times, without the additional stress of early pregnancy.**

Up until implantation, the developing conceptus (that is what the early embryonic development is termed until implantation) virtually "floats" in uterine fluid, which provides it with direct nourishment and protection until it reaches time for implantation at around 45 days after conception. Any sudden reduction in energy intake can therefore lessen the nutritional quality of the uterine wall secretion and the developing conceptus can virtually starve to death and be reabsorbed, resulting in Early Embryonic Abortion (EEA). This process can also occur in very thin mares, especially those at the peak of their lactation drain, which are unable to maintain their early pregnancy, reabsorb and then return to season 4-6 weeks later as they are able by this time to conserve enough energy to stimulate an oestrous cycle, albeit likely to be less fertile.

The High Risk Period

The high risk period of "nutritionally induced" EEA is between 21 days after conception when the developing conceptus is the size of a large marble, up until 65 days when it is newly implanted and size of a tennis ball.

HANDY HINT 4: TRAVEL BEFORE OR AFTER THE HIGH RISK PERIOD

The 'high risk' period between 21 to 65 days of pregnancy, during which sudden decreases of energy intake for as little as 4 consecutive days can result in EEA, has implications as to the time after breeding that a mare should be pregnancy tested and travelled if she is to be relocated after a positive pregnancy test. Many owners send both dry and wet mares to stud and ideally want them returned as early as possible, once they have been confirmed pregnant, to save on stud agistment fees.

In all these cases, the mare must be in good condition and measures taken to ensure that the mare (and her foal at foot) are provided with an adequate intake of feed and managed to ensure that they have access to feed bins in a mare group. If a mare is in poor condition due to the seasonal conditions, heavy lactation on an inadequate diet, or ill-health, relocation after pregnancy confirmation should be delayed until at least 65 days or longer.

The new high resolution digital ultrasound pregnancy testing equipment which is now available, can enable your vet to confirm pregnancy in a mare as early as 12-13 days. After 21 days, the pregnancy is usually viable and will be maintained, providing that the seasonal conditions are suitable and feed intake is adequate. Many owners do not wait until the traditional 42 day pregnancy test to return mares back to their home property. The safest period to return mares is between 21-35 days as the developing conceptus is not large enough to demand a large volume of high daily nutritional input from the uterine fluids. After 35 days, the size of the conceptus, and the impending period of implantation, can reduce the viability of the foetus as it implants and the membranes are established and functional by day 60-65 after conception.

Therefore, where it is likely that there could be a lower than required energy intake during relocation and settling in on a new property, it is wise to transport mares between 21-35 days after conception after a viable pregnancy is confirmed, rather than after the traditional 42 days during the period of implantation. In a good season, or for short haul transportation, there is little risk after the traditional 42 day pregnancy. Although, there is a low risk in a well fed mare, mares in poor condition, or lactating mares under the high energy demand of lactation as it peaks between 4-10 weeks, have a higher risk of abortion, if nutritionally stressed after this period until they are 65 days in foal.

HANDY HINT 5: HOLD MARES AT STUD UNTIL 65 DAYS UNDER DRY OR LOW FEED CONDITIONS

Under poor seasonal conditions, it is better to leave a mare at a stud on agistment, providing that the stud is feeding her well, especially a lactating mare, until 65 days of pregnancy, than to risk energy reduction during long distance transport, change in feed, environment or 'bossing' away from feeders by other mares. After 65 days, the risk is reduced once implantation is established and until 90 days of pregnancy, and after this time, except in severe cases of starvation, nutritionally-induced EEA is rare. At this time, uterine infection introduced at service or insemination, although rare in the latter, becomes the underlying cause of EEA.

Take Home Message

If the seasonal conditions are likely to restrict a mare's energy intake, especially after relocation to another stud or a home property, it is best to leave the mare at the stud until she is at least 65 days in foal. If you plan to transport a mare over a long distance early in pregnancy, do so between 25 -35 days in foal, rather during the more critical 35-65 day period, if the seasonal conditions are likely to restrict her energy intake and then ensure that she is provided with an adequate, good quality and balanced diet once she returns to the home property. It only takes 4 days of restricted energy intake during travelling or settling into a new group of mares to cause a lowering of energy intake below 80% of requirement and increase the risk of early embryonic abortion.

**FREECALL 1800 112227 Website: www.kohnkesown.com
Email: info@kohnkesown.com**

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