



FOAL HEAT BREEDING

Patrick M. McCue

DVM, PhD, Diplomate American College of Theriogenologists

Foal heat is the first estrus or heat period that occurs after foaling. Mares usually first come into heat by 6 to 8 days postpartum. The average interval from foaling to first ovulation is 10 days, although mares can ovulate as early as 7 to 8 days or as late as 14 to 15 days postpartum and be considered clinically normal. Pregnancy rates are usually higher for mares that ovulate 10 or more days after foaling than mares that ovulate on or before day 9 post foaling.

The Breeding Decision

Mare owners and breeding managers must decide as a general rule whether or not to breed mares on the foal heat. Reviews of breeding records indicate that mares initially bred on their foal heat will maintain a foaling interval of approximately 12 months. Not every mare becomes pregnant after a foal heat breeding, but the average interval from foaling to pregnancy for mares initially bred on the foal heat is about 25 days. In contrast, waiting until the second (30-day) heat to begin breeding will inevitably result in a longer foaling-to-conception interval. Owners that choose not to breed mares on the foal heat must accept the fact that eventually each mare will have to be left open for a season every 4 to 6 years when the potential foaling date becomes too late in the season. The economic implications of the lost foal crop and continued costs of

board and care for barren mares during this 'lost year' are obvious.

The Postpartum Mare

The equine uterus undergoes remarkable changes following foaling. Placental fluid and debris (called lochia) is expelled, the tissue lining of the uterus regenerates and the size of the uterus decreases. A majority of mares have significant inflammation present in their uterus during the first week postpartum and bacteria can be cultured from the uterus of many mares during their foal heat. Although many breeding programs specify that mares will not be bred unless a negative uterine culture is obtained (i.e. the mare is 'clean' or free of infection), research has indicated that the presence or absence of bacteria is not correlated to fertility *in foal heat mares*. This will not hold true for cycles after the foal heat, where presence of uterine bacteria is a significant cause of reduced fertility.

A majority of mares have a foal heat ovulation and subsequently continue to cycle at approximately 21-day intervals. However, some mares will have a foal heat ovulation followed by a variable period of anestrus until the mare resumes normal cyclic activity. A frustrating few will have minimal to no follicular development following foaling and will not cycle at all for 2 to 3 months. Failure to develop follicles

and/or ovulate after foaling is due primarily to the effects of season. Consequently, mares that foal in January through March in the Northern Hemisphere are most likely to be affected. Failure of follicular growth in postpartum mares has occasionally been attributed to lactation and some mares return to estrus soon after the foal is weaned.

Management Options

A number of strategies have been used in an attempt to enhance fertility of mares in the early postpartum period. Exposure of pregnant mares to an artificial photoperiod during the last trimester will shorten the length of gestation by 7 to 10 days and decrease the risk of returning to a state of ovarian inactivity or anestrus following foaling. Administration of progesterone or Regumate to postpartum mares has been used in an attempt to delay the first ovulation and enhance pregnancy rates, but results have been inconsistent. It used to be trendy to lavage the uterus of mares 1 to 2 days after foaling. However, clinical trials concluded that routine uterine lavage did not increase pregnancy rates in normal post-foaling mares. Oxytocin or prostaglandins are sometimes used in post-foaling mares to promote uterine contractions and thereby eliminate fluid and debris and decrease the size of the uterus in an attempt to enhance foal heat conception rates.

A simple, common strategy to optimize postpartum conception rates in mares with uncomplicated foalings is to have the mare examined by ultrasound on days 7 and 9 post foaling. Mares that ovulate on or before day 9 are not bred, but are administered prostaglandins 5 days after ovulation to bring them back into heat (i.e. short-cycled). Mares that still have a large follicle 9 days post-foaling are bred using standard techniques. The use of ovulation-inducing agents (i.e. hCG or GnRH) is discouraged until day 9 or 10, since ovulations early in the postpartum period may not be as fertile.

In general, owners are encouraged to breed mares during the foal heat period. However, mares that experienced foaling or postpartum complications (i.e. dystocia, retained placenta, prolonged discharge, etc) may have a decreased foal heat pregnancy rate or an increased embryonic loss rate. Consequently, it may be advisable to breed such mares on the second postpartum estrus (30 day heat) or a later heat period.