

## Induction of Lactation in the Non-Pregnant Mare

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Poor milk production or the loss of a mare in the peripartum period (occurring in the last month of gestation or the first few months after delivery) can jeopardize the health and viability of the foal. To provide the foal with an alternate source of milk, the horse owner might opt to hand-rear the foal using a milk replacement formula, or pair the foal with a lactating nurse mare. While the use of a nurse mare is generally preferred to ensure proper socialization and nutrition of the foal, many horse owners do not have access to nurse mares, said John V. Steiner, DVM, Dipl. ACT, of Hagyard Equine Medical Institute in Lexington, Ky., in his presentation on induction of lactation in the non-pregnant mare given at the Hagyard Bluegrass Equine Reproduction Symposium 2006, which was held Oct. 18-21 in Lexington.

Steiner said that in a 2002 study led by Peter F. Daels, DVM, PhD, of the Equine Embryo Transfer Center in Passendale, Belgium, researchers successfully induced lactation in non-pregnant mares that had previously delivered and nursed at least one foal. On Days 1 through 14 of the study, the mares were fitted with vaginal sponges containing altrenogest (Regu-mate, which suppresses estrus) and estradiol benzoate (the ester of a potent estrogen that prepares the uterus for implantation of the fertilized ovum). On Day 8, the mares received intramuscular injections of estradiol benzoate and Prostaglandin (dinoprost, which destroys the progesterone-producing corpus luteum that is formed after ovulation). On Days 8 through 14, the dopamine D2 receptor antagonist sulpiride (used as an anti-psychotic in humans, but its antagonistic effects on dopamine levels encourages milk production in horses), was administered intramuscularly twice daily. This combination of drugs effectively can trick the mare's body, feigning pregnancy, birth, then lactation.

Mechanical milking of the mares began on the ninth day of treatment, with oxytocin (which is involved in milk letdown) administered approximately two minutes prior to milking. Although the mares in this study did not appear to produce colostrum, they were induced to lactate sufficiently to adopt foals within two weeks.

In a recent study conducted on a large nurse mare farm in Central Kentucky by Steiner, a modification of Dael's protocol was implemented. According to Steiner, "Modification of the protocol allowed us to use materials that were readily available, which made it a little more practical."

In each year of the three-year study, 20-25 non-pregnant mares were induced to lactate. Following the revised protocol, the mares were given progesterone and estradiol injections once daily on Days 1 through 7. On Days 1 through 10, the mares received twice-daily intramuscular injections of sulpiride. On day seven, each mare received a single intramuscular injection of the luteolytic agent, Lutalyse, which destroys the corpus luteum.

Because the nurse mare farm had a large number of orphan foals as a result of their dams being leased, mechanical milking of the treated mares was not necessary. On the first day of treatment, one orphan foal was placed with each treated mare to provide suckle stimulus. Foals that were poor sucklers were subsequently replaced with aggressive sucklers. Oxytocin was administered to the mares on a discretionary basis. Each foal was supplemented with mare's milk or milk replacer until its mare had enough milk to support it.

Using the revised protocol for induction of lactation, approximately 80% of treated non-pregnant mares lactated sufficiently to raise a foal. The cost of the 10-day treatment was approximately \$200 per mare.

"The advantages of using this protocol are that it is practical and affordable," said Steiner. "It also produces reliable results."

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**Readers are cautioned to seek the advice of a qualified veterinarian  
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