



HEALTH ZONE *Breeding*

Preparing for Breeding

BY DR. NANCY LOVING



ANNE M. EBERHARDT PHOTOS

Mares should undergo a reproductive exam before heading to the breeding shed

Breeding a mare is rarely as simple as choosing a stallion and setting a date. Some potential broodmares are still actively competing, presenting fertility challenges; some are notoriously difficult to get in foal, causing breeding scheduling headaches; and others are first-timers heading into the unknown. Or maybe the mare recently carried a high-risk pregnancy to term; her foal is

safely on the ground now, and how the next breeding will go is anyone's guess. Regardless of the horse and her history, breeders must take certain steps to promote a successful mating.

Initial Steps: Examination

Even if your mare has been bred previously, it is still a good idea to have your veterinarian perform a thorough reproduc-

Take steps to ensure a successful mating and pregnancy, especially in at-risk mares

tive exam prior to the breeding date. This helps him or her identify any problems and take steps to improve reproductive health as necessary. The late Dr. Michelle LeBlanc, a reproduction specialist at Rood & Riddle Equine Hospital in Lexington, described a typical veterinary reproductive examination as an evaluation of the external genitalia and cervix, a complete physical and vaginal exam, and a transrectal ultrasound examination and palpation of the reproductive tract.

If a mare failed to conceive during the prior breeding season, "have her evaluated in the summer before the next breeding season to determine what factors contributed to her infertility," LeBlanc said. "Provide your veterinarian with a detailed history including performance career, any pain, colic, or infectious diseases that occurred, in addition to the reproductive history."

The reproductive exam might also help veterinarians identify conformational defects negatively impacting fertility, such as those causing wind sucking (air aspiration), urine pooling, or cervical tears, said LeBlanc. These conditions might require surgical repair.

"Anatomic abnormalities may not only cause chronic endometritis (inflammation of the uterine lining) but may also significantly hinder a treatment plan's ability to resolve endometritis, no matter how appropriate the strategy," reported Dr. Sara Lyle, clinical instructor of theriogenology at Louisiana State University's School of Veterinary Medicine. Surgical repair might mean performing a simple Caslick's vulvoplasty (surgically closing the upper part of the vulva to keep out contaminants that could cause infection), or it might involve more complicated procedures such as urethral extension, perineal body reconstruction, or cervical laceration repair, to name a few.

Depending on the information veterinarians glean from the reproductive exam, they might pursue additional diagnostics such as bacterial culture and cytology, endometrial biopsy, and/or hysteros-

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copy (visual inspection of the uterus with an endoscope).

“The best way to determine uterine health and its ability to sustain pregnancy is with an endometrial (uterine) biopsy,” advised Lyle. “A uterine biopsy evaluates several factors: inflammation, deposition of fibrosis (scar tissue formation) around the base of the glands, degenerative changes in blood vessels, and the presence of dilated lymphatics.”

Lyle describes a scoring system that veterinarians can use to categorize a mare's chances of carrying a foal to term based on those test results: I (greater than 70-80% success rate), IIA (50-70%), IIB (10-50%), and III (less than 10%).

“Hysteroscopy provides additional, valuable information on focal disease and abnormalities, such as cysts, plaques, adhesions, or atrophy,” she added.

LeBlanc said she also cultures the uterus if examination indicates a problem such as vaginal inflammation, fluid in the uterus, a heavy uterus, and/or a history of infertility. Endometrial culture and cytology corroborate the presence of inflammation and infection.

“Samples are obtained either by direct swab, with low-volume lavage (flush), or from a biopsy sample,” she explained. “While a swab sample is a great screening method, the last two methods are more sensitive in detecting an issue in problem mares.”

If the veterinarian identifies infection through laboratory uterine sample analysis, he or she proceeds with treating the mare and gives her sufficient time to heal. But there is no one plan that fits all.

“I usually recheck a mare in the fall so she is reproductively healthy going into winter,” said LeBlanc. “I also develop a management plan for the next breeding season based on an accurate diagnosis.”

Veterinarians might investigate further if the mare displays certain problems. When a mare exhibits abnormal estrous cycles, if she shows signs that suggest an ovarian tumor, or if she appears to have insulin resistance and/or Cushing's disease, LeBlanc recommended running assays for hormones.

Examining the external genitalia also alerts a veterinarian to other issues, such as tumors surrounding the vulva or rectum (e.g., squamous cell carcinoma or melanoma), that might impair foal delivery.

As for the rest of the mare's body, conducting the general physical exam is as important as examining the reproductive tract during the pre-breeding exam. The veterinarian should complete a thorough assessment for arthritis or other chronically painful conditions, which is important because pain is a stressor implicated in decreased fertility. Checking the mare's body condition is also important.



Uterine cultures can be taken by a direct swab

Both of our sources agree that depending on a mare's body condition and access to a balanced ration, her owner might not need to modify the diet.

“If the mare has a body condition score (BCS) of 4.5-6 (5 is excellent), the diet needn't be changed unless extreme cold causes a mare to require more calories,”

LeBlanc explained. “If she is fat, it is important to reduce energy consumption.”

An owner of an underweight mare, on the other hand, should bring her up to condition prior to breeding using careful nutritional strategies. Mares with scores of less than 5 don't generally conceive as easily as those at BCS 5 or 6. “Extremely thin mares can have problems with cycle irregularity that delays entry into the breeding season,” explained Lyle.

Ideally, practitioners complete the mare's dental care prior to breeding, along with routine immunizations and deworming. If a mare exhibits a rough hair coat or isn't shedding out normally, this might indicate parasitism or other underlying illness, poor nutrition, and/or poor hormonal responses that could interfere with fertility. Address any and all potential health issues prior to breeding.

Knowing When to Breed

One key step to ensuring breeding success is to identify accurately when a mare is in heat.

“The best method for determining estrus is by presentation of the mare to a stallion for teasing,” LeBlanc said.

If the mare is in season, she will show characteristic signs such as tail raising, squatting, and urinating. Lyle added that

BUCKED JOINT SHINS BONE SPURS ARTHRITIS EQUINE RACING BREEDING TRAINING ATHLETE GUARANTEE MANAGEMENT LENGTH INJURY WEANLINGS X-RAY RADIOGRAPH INFLAMMATION SWELLING POST SURGERY LAMENESS DIET CARE PRODUCT SCOOP SUCCESS STORIES USA DELIVERY HORMONES SUPPLEMENT DEVELOPMENT HEALTH PELLETS PROTECTS RESTORES ORGANIC WATER INGREDIENTS BUILDING BLOCKS MICRO-SIZED ISOMER VITAMINS NUTRITION SUPPLEMENT HORSE BROODMARES CELLULOSE NUTRIENT ACID BONE GLUTAMINE GLYCINE PROTEIN AMINO ACIDS COLLAGEN MOLECULES DOSE MILLIGRAM GLUCOSAMINE CHONDROITIN SULFATE RESINACID DENSITY GENETIC EQUINE OCDS OSTEOCHONDROSIS BONE CYSTS OSTEOCHONDROSIS DISSECANS DJD (DEGENERATIVE JOINT DISEASE) EPIPHYSIS WEANLINGS OSTEOARTHRITIS NAVICULAR SYNDROME SESAMITIS BUCKED SHINS BONE LESIONS SLAB FRACTURES BONE SPURS ARTHRITIS EQUINE RACING BREEDING SALE SHOW COMPETITION TRAINING ATHLETE BROODMARES MANAGEMENT STRENGTH INJURY SOUNDNESS X-RAY YEARLINGS RADIOGRAPH INFLAMMATION SWELLING POST SURGERY LAMENESS DIET CARE PRODUCT SCOOP SUCCESS STORIES USA OPTIMAL CARTILAGE DEVELOPMENT

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teasing is particularly important when dealing with a natural mating.

If a stallion is not available for teasing yet an owner suspects that a mare is in heat, the veterinarian can perform serial ultrasound exams to determine the ideal time to breed. He or she uses the ultrasound images to evaluate the size of an active follicle on the ovary.

"Estrus may be determined by transrectal palpation and ultrasonography looking for increasing uterine edema (fluid swelling), a growing follicle, relaxed cervix, and no identifiable corpus luteum (the structure formed after the follicle that releases, or ovulates, the egg and then produces progesterone) on the ovaries," Lyle explained. "Owners often focus on follicle size, but mares can have very large follicles during diestrus so it is key to determine that no corpus luteum is present and the cervix is relaxed or is relaxing."

Many veterinarians rely on medications to induce estrus, specifically progesterone treatment followed by prostaglandin injection, but LeBlanc said she prefers simply using ultrasound evidence to time breeding.

Optimally, a mare conceives after as few breedings as possible.

"Mating more than once during estrus dramatically lessens the chances of pregnancy," Lyle said. "Infertility of a stallion further compounds the problem so it is advisable to choose a fertile stallion."

Pre-Breeding Treatment

For the mares that tend to pool fluid and/or urine in the vaginal vault or in the uterus due to the conformational defects described, LeBlanc recommended uterine lavage prior to mating, assuming there is no isolation of bacteria, which would indicate the need for more aggressive therapy.

Veterinarians approach poor perineal conformation, such as a forwardly tipped vulva, with the Caslick's surgery to prevent fertility-thwarting infections. Once a mare has been declared "in foal" via ultrasound examination, the veterinarian performs the procedure. He or she removes these sutures prior to delivery to prevent tearing.

Beware of Medications

Show your veterinarian a list of any medications or supplements the mare is taking or consuming prior to breeding, and keep him or her informed of any changes to this list throughout the mare's pregnancy.

"Most drugs should be limited during the first trimester of pregnancy," LeBlanc noted.

Lyle advised owners to avoid administering drugs, such as prostaglandin or oxytocin, that make the muscular uterine wall (myometrium) contract or that cause luteolysis, the shutdown or destruction of the corpus luteum. These medications can halt progesterone production or initiate premature delivery.

Consuming some plants, such as locoweed, sorghum, and hybrid Sudan grass, is known to cause birth defects.

"Endophyte-infected fescue is a problem in certain areas of the country," Lyle added. "While predominant signs (of endophyte toxicity) include prolonged gestation, red bag, retained placenta, and agalactia (lack of milk production), its toxic principle (ergot alkaloids) also has negative effects on estrous cycles, leading to decreased pregnancy rates, increased early embryonic death, and late-term abortions."

Lyle noted that griseofulvin (a type of antifungal) administration during pregnancy has been linked to fetal defects such as microphthalmia (abnormal smallness of one or both eyes), brachygnathia superior (a short upper jaw), and cleft palate. LeBlanc also cautioned against using the antibiotic enrofloxacin in the last months of pregnancy, as it damages fetal cartilage. Furthermore, drug therapy for the neurologic disease equine protozoal myeloencephalitis (e.g., sulfadiazine or sulfamethoxazole-trimethoprim, pyrimethamine) during pregnancy has resulted in weak, recumbent foals with skin lesions, reports Lyle.

Thus, she urged owners to consult their veterinarians before administering any drug that is not labeled as safe for use in pregnant or nursing mares.

Take-Home Message

A lot of thought, effort, and expense go into getting a mare in foal. A thorough reproductive exam allows a veterinarian to identify problems that could be resolved if addressed far ahead of breeding, particularly in the mare that has difficulty conceiving or maintaining pregnancy. Talk with your veterinarian about other health strategies you can use to help improve breeding success. **BH**

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