



# HEALTH ZONE

## Preparing Mares for Breeding

BY HEATHER SMITH THOMAS



ANNE M. EBERHARDT

Any artificial lighting program used to get mares cycling early should continue until the days become long enough for natural sunlight to catch up

**TO GET EVERY MARE** safely in foal, it pays to start preparing for breeding well ahead of when you plan to breed her. This means an assessment of health, nutrition and body condition, a breeding soundness examination, and addressing any problems early enough to be able to correct them. Teeth should be checked to make sure there are no dental problems. Regular foot care is important, along with attention to any lameness/soundness issues. If a mare is in pain from laminitis, navicular syndrome or a leg/foot injury, she may not breed successfully, and any lameness problem may get worse when she gains weight during late gestation.

The mare's history should be taken into consideration, to give her every chance for conception. If she recently retired from racing she needs adequate time to "let down" and change lifestyle. If she's extremely physically fit (all muscle, very little fat), she needs time to alter body composition; she needs some fat to cycle properly. Other factors that could compromise reproductive ability include athletic injury or drug therapy. If she's

had anabolic steroids, for instance, these could hinder reproductive performance. Give her several months to get any medications out of her system before you try to breed her.

An older mare may have fertility problems due to infections from a previous foaling or degenerative changes in the reproductive tract. The older a mare, and the more foals she's had, the greater the chance for problems. The more her tissues have stretched, the less they come back to their previous condition, which may allow contamination and infection. Older mares should be carefully monitored and managed to optimize their chances for successful pregnancy.

Jeff Danford, broodmare manager at WinStar Farm in Kentucky, said much of this can be accomplished between breeding seasons. "With mares that didn't get in foal the past season, you have time to work on this before the next breeding season. You can have a plan in place, so things can go smoothly during that busy time of year," he said.

According to Danford, the protocol at

WinStar is evaluation of barren mares at the end of the season if they don't get pregnant, doing any necessary biopsies or uterine scoping during the off season, starting barren mares and maiden mares under lights the end of November to get them cycling, doing pre-breeding biopsies on all mares, and putting some of them on a hormonal program if necessary.

"I make sure we get a clean uterine culture on all mares before I am done with them for the year. If a uterine infection is the reason they didn't get in foal, I try to get them cleaned up before I am done. They are still cycling, at that point, which makes it easier to get cultures," he said.

It's impossible to get cultures on mares in anestrus when their cervix is closed.

"Cultures can be gotten when they are starting to cycle again after anestrus, but the most accurate cultures are when they are on a more normal cycling schedule. It makes us scramble if we're trying to do this just ahead of breeding season because it generally takes about 60 days of artificial lighting to get the average mare cycling," said Danford.

### ARTIFICIAL LIGHTING

Dr. Ben Espy (equine reproduction specialist in San Antonio, Texas) said because mares are seasonal breeders, they start cycling when days are getting longer. "Never underestimate the importance of lighting properly when using artificial lights to get mares to cycle earlier. Some misunderstandings occur regarding total length of lighting, and timing of lighting," he said.

"For instance, 14 hours of total daylight is crucial, including spectrum-specific artificial UV light. Even though we are artificially lighting the mare, this is still not as good as 14 hours of sunlight. We also know that if you add the light necessary to create 14 hours, it doesn't work as well if you add it in the morning.

It should be in the evening,” Espy said.

There are a number of lighting techniques, including pulse lighting. “Some veterinarians describe success using normal daylight and leaving the barn dark at night, and then in the middle of the night the timer turns on the lights for two hours. That seems to be effective, but it is a bigger hassle because you have to keep adjusting that pulse of light to match up with daylight—which keeps changing. It is a moving target, not as simple as just leaving lights on to make your day longer,” he explained.

“Mares need at least 60 days of lighting, to cycle. Another important thing to understand is that mares may slip back into winter anestrus if you stop the extra lighting in February or March. If you’ve started them cycling by then with artificial light or hormones, it is very important to maintain this regimen or they may stop cycling about the time you are trying to breed. Any lighting program should continue until the days are actually getting

longer in late March,” said Espy.

Even mares that are pregnant and due to foal in January or February need light. “Frequently those mares, if they are not under lights, will foal and then slip back into winter anestrus,” he explained.

Danford likes to start mares under lights after Thanksgiving. “Our mares get 16 hours of light and eight hours of darkness, trying to mimic mid-summer, regarding light intensity. Mares’ cycling is determined by the length of daylight. With an artificial lighting program, it’s generally the end of January or beginning of February before they are cycling regularly. Some mares tease before then, and a few mares don’t stop cycling during winter. But the majority go through anestrus and need to be restarted.”

#### HORMONAL PROGRAMS

“We deal with each mare as an individual, but program many of them for breeding,” said Danford. “Artificial lighting is not 100% effective for making

every mare cycle. A certain number will still be transitional as we get into February, even after 60 days of lighting. One thing that is helpful with maiden mares, but also with some of the younger barren mares, is to program them with certain hormones. They need to be cycling, to some extent, for this to work. You can’t take a mare that’s in anestrus and program her,” he said.

“The programming helps you regulate their cycles if they are still transitional and helps with some of the maiden mares that are cycling for the first time. Our preferred method is to give them 10 days of progesterone (estradiol), which we call a P&E shot. When they are transitional, they are making follicles, regressing follicles, sometimes ovulating and sometimes not. Nothing is synchronized to work properly, so we try to suppress any follicular activity for a certain period,” explained Danford.

Espy also uses this method. “P&E is progesterone and estradiol compounded.

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[per-fawr-muh ns] *noun*

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It is similar to a human birth control pill but in an injectable form for the horse. We give this compounded concoction once a day for 10 days after we establish that the mare is transitional, after using ultrasound to check her follicles,” he said.

“People have different criteria for when to consider the mare ready for this, but I think she needs to have at least a 20-millimeter follicle (when her follicles are growing and receding). If you can catch her with a 20-millimeter follicle or larger, then you can use the P&E. In my experience, if the follicle is only 15 to 18 millimeters, the mare won’t respond,” Espy said.

“Today most veterinarians use ultrasound and can measure exactly how big the follicles are. In earlier years we had to palpate ovaries and try to guess the size of the follicles. Now it’s a more exact science. We put the mare on the P&E for about 10 days and on the 10th day give a prostaglandin shot in the afternoon. About 85 to 90% of those mares will ovulate eight or nine days later, which is 18 or 19 days after beginning this program,” Espy said.

“This method works very well with maiden mares, and I get about 80 to 85% of them in foal with their first cover,” said Danford. “I also do this program with about half the barren mares. We evaluate them individually and see how they are cycling. If they are already cycling nicely, there is no need to manipulate them.”

Danford said older mares don’t seem to respond as well to this program. “If an older mare is transitional, she often just stays transitional if I try to program her. With older barren mares, such as 14 years old or older, I may not be trying to get a February cover and might give them until March—and let them come into normal cycles on their own. Those older barren mares can be the hardest group to get to cycle, and sometimes trying to manipulate them makes it worse. I am usually aiming for a February cover on the young barren mares and all the maiden mares, but the older barren mares I am happy to wait until March, and try to let them do it on their own,” he explained.

“Several other hormonal techniques are frequently used in manipulating mares’ cycles,” said Espy. “One is a drug called buserelin. Dr. Walter Zent (one of my mentors at Hagyard Equine Medical Institute) published some of the earliest data on protocols using this drug. This is a GnRH (gonadotropin-releasing hormone) analog to deslorelin, the drug used in the old Ovuplant and currently in SynchroMate. They are in the same class of drugs, but buserelin is unique in that most of these other drugs manipulate cycling mares, and research has shown that buserelin may be able to induce cycling and ovulation if the mare hasn’t started cycling yet,” said Espy. Buserelin is not available in labeled form in the U.S. yet, so it is a compounded drug.

“Another group of drugs is used for manipulating mares that are in transition between winter anestrous and cycling. During this period the cycles are often long and erratic and there is no estrous schedule yet,” said Espy. The follicles are growing and receding, but none of them are maturing to ovulate.

“That group of drugs includes Regu-Mate, which we would put the mare on for seven to 14 days. Some people feel that when you take mares off Regu-Mate they have a rebound effect and start to cycle. Some people think that after you remove the Regu-Mate you need to add a prostaglandin to kick-start the cycling. This is probably the oldest technique, used for many years, to get a mare to complete the transition,” he said.

“Use of prostaglandin alone (Lutalyse or Estrumate) does not work in a transitional mare. These are injections that many people call a ‘heat shot’ or ‘prostin’ shot to ‘short-cycle’ a mare and start her next heat cycle. This works for a mare in the middle of the breeding season, but if you try it on a mare during January or February, it won’t work. The prostaglandin requires that the mare has already ovulated (which generally means farther into the spring), for it to work,” Espy explained.

## BREEDING SOUNDNESS EXAMINATION

It is important to have a good breeding soundness exam for every mare, regardless of age. “I evaluate external anatomy, body weight, and condition of the mare,” said Espy. “Is she athletic, thin, or fat? Nutrition is crucial if you want her to become pregnant. Reproduction is a luxury; the body takes care of maintenance requirements first, and if the mare is too thin, she won’t become pregnant. If she is clinically ill or has poor appetite or some other problem, she needs to get over that problem before

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## DEALING WITH PROBLEM MARES

“There are always some problem mares that I need to follow, such as a mare that is chronically infected,” said Jeff Danford, broodmare manager of WinStar Farm in Kentucky. “There are many reasons a mare gets dirty, including breeding or conformation. The mare may have poor conformation and feces drops through the vulva—and she gets an *e-coli* infection from feces. Most fillies on the racetrack are sutured. Once they’ve been sutured, you have to keep re-doing it because they’ve lost that natural seal,” he said.

“With some problem mares, I might tease them and follow them through summer and fall. We can do some of the more invasive types of procedures like a biopsy or scoping in the off season since you usually can’t breed a mare within 30 to 60 days after something like that. You want to do it during summer and fall before the next

season, while the mare is still cycling,” Danford explained.

“This lets you know what you are dealing with, and you can make a plan. We might have a specialist at Hagyard scope the uterus and take a look inside.” This can be helpful to determine if a mare has uterine cysts, or some other problem.

“Some older mares become more difficult to get in foal. Uterine scoping and biopsies are just two examples of things that can help us take a closer look and make a better game plan for breeding season. Biopsy provides a sampling of the tissue and we can score it to know the chances of getting her in foal. A poor biopsy might be a reason to retire the mare. We have several retired older mares here at WinStar,” he said.

*By Heather Smith Thomas*

you try to breed her. You could spend thousands of dollars, reproductively, trying to get her bred, and it won’t make a bit of difference,” he said.

“I look at external conformation of the vulva, whether it is vertical or not, or has good tone, or is stained with fecal material. Are the anus and vulva in a vertical line? These things change with body weight and age.”

He also uses a speculum for part of the examination. “I surgically prep the vulva and insert a single-use sterile speculum up into the vulva with a pen light and look at the cervix. I can evaluate the character of the cervix and see whether it has a tear or fluid draining out of it. There may be irritation if the mare is a wind-sucker,” said Espy. He checks for adhesions that might indicate previous tears. Color and health of the vaginal tissues, and whether there is a discharge, can indicate if the mare has an infection.

The uterus, cervix, and ovaries can be checked by rectal palpation, and the oviducts checked for adhesions that might interfere with egg passage. A cyst or tumor on an ovary can be detected, as can any enlargement of the uterus or thickening of its walls—which might be an indication of an infection that left some scar tissue. A uterus that lacks proper tone (flabby) is also abnormal, reducing the chances for successful pregnancy. A thickened cervix due to injury

from a previous foaling, or from infection, will be a detriment.

“I ultrasound the reproductive tract to determine if her uterus and ovaries are appropriate for the time of year. If it’s December and she has a very small ovary and a soft, flaccid, small uterus, I am not very concerned, but if it’s May and she has small ovaries, I would be more worried,” he said.

“Finally, I do a culture and cytology of the uterus. This gives an idea whether there is any kind of infection—bacteria or

fungi. Something might be hiding, that you can’t see with just a physical examination.”

During a breeding soundness exam he asks about the mare’s history—previous foals, the years and time of year they were born, whether she had a colt or a filly. Did she have a uterine infection? Was she flushed after breeding? Or infused with antibiotics after she was bred? Did she have a fever? Did she ever have a retained placenta? A mare’s history can help sort out problems and possibly reveal how to deal with them. **BH**

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