

Feeding the Estrous Cycle

Keys to successful breeding are well-balanced diet, healthy body condition

BY HEATHER SMITH THOMAS
ANNE M. EBERHARDT PHOTOS

Mares must have a well-balanced diet and a healthy body condition to cycle properly and conceive and carry a foal. According to equine nutritionist Dr. Tania Cubitt, nutritional management is a simple, cost-effective tool to ensure normal estrous cycles and optimum pregnancy rates. If adequate nutrients are not accessible to the mare as stored body fat or available in the feed, she will not cycle.

Importance of Body Condition

A common mistake some owners make when they decide to breed a mare is not planning ahead—they make the decision to breed at the last minute. At this point, pregnancy might not be feasible if the mare is too thin or too fat.

“Owners need to be proactive and get

the mare in proper body condition first,” Cubitt said. “If her body condition score (BCS) is somewhere between 5 (moderate) and 7 (fleshy) on the Henneke scale, there’s a much better chance of getting her pregnant.”

Dr. Amy Gill, a private equine nutrition consultant in Lexington, says thin mares are less likely to cycle, become pregnant, or stay pregnant than mares with adequate stored energy in the form of adipose (fat) tissue. Broodmares with body scores of 4 and below are too thin for a healthy pregnancy, and mares with scores of 8-9 are too fat. Mares with desirable BCS between 5 and 7 start cycling earlier in the breeding season than mares with low body condition scores.

“Adequate body condition helps create a positive energy balance, which tells the

mare’s body there’s enough energy to cycle and become pregnant,” Gill said.

Thin mares have decreased ovarian activity and longer intervals between ovulations. They are less likely to cycle and more likely to suffer early pregnancy loss if they are bred. Dr. Brian Nielsen, an assistant professor of equine nutrition at Michigan State University, notes the biggest issue for getting mares in foal is just making sure they have adequate body condition.

“There have been some misconceptions in thinking that fat mares are not fertile or that the ideal situation is to have mares thin and in a gaining condition,” he said. “Research shows, however, that you’re better off having them a little on the plump side.”

Even though a BCS of 5 is considered ideal, a mare needs fat reserves at the time she foals and benefits from a body score of 6 or 7.

“Even if she’s BCS 5 at foaling, her energy demands increase dramatically at that time for lactation,” Nielsen said.

The mare will lose weight, and, unless she has some reserves, lactation could lower her condition to a point where she’s less apt to cycle properly for rebreeding.

“The mare should be fed more during late pregnancy so she is not BCS 5 or lower at foaling and so she’ll have more leeway after she starts lactating,” he continued. “As someone once said, ‘You should feed a mare like a dairy cow; otherwise, she’ll look like one.’ Feed a mare for lactation as well as for rebreeding, if that’s your intention.”



Adequate body condition helps create a positive energy balance in broodmares

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The decline in fertility levels has been well documented as one of the major concerns for breeders. This is the case for both male spermatozoa fertility and female reproduction fertility whilst the impact of problems associated with the female immune system have affected the viability of valuable mares and super cows as breeding propositions.

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A mare's body condition should be evaluated before she is bred

Overweight mares, especially if they're obese, might also have difficulty getting pregnant. Obesity in horses has been associated with decreased insulin sensitivity, and research has shown that both obesity and decreased insulin sensitivity might decrease reproductive function. Cubitt points out obese mares also have longer intervals between ovulations, and this could be due to a persistent corpus luteum (the progesterone-producing structure formed after the follicle releases the egg; this hormone keeps the mare from going back into heat) in the ovary. This could make rebreeding the obese mare more difficult if the first breeding is not successful.

If a fat mare needs to lose weight, get her down to proper body condition well ahead of when you plan to breed her.

"Mares on an increasing plane of nutrition (gaining weight) tend to cycle and breed more successfully than a mare on a decreasing plane of nutrition," Cubitt said. "Even though she may be fat, loss of weight signals the brain that she should not cycle."

Nature has programmed the body to ensure its own survival; a mare losing weight might not have adequate nutrition for both herself and a developing fetus.

If a mare is quite thin (BCS 2 or 3), it might take six months to get her up to proper body condition for breeding. But take care when feeding for weight gain, not to overfeed energy-dense feeds that might create digestive problems or lead to laminitis. Wait a year to breed if your mare's body condition is not where it should be, Cubitt suggested. This would allow the mare time to gain and maintain proper weight and resume a normal estrous cycle before you try to get her in foal.

"Keep her on an optimum plane of nutrition, because once she does get pregnant, the first few weeks of pregnancy are also crucial," said Cubitt. "Early embryonic loss is a big issue in mares, plus the fetus is developing critical organs such as brain and eyes in those first few weeks. By Day 24 you can see the heartbeat. You don't want drastic changes in the mare's body condition during that time. This is a very vulnerable period."

Importance of Balanced Diet

A broodmare needs a balanced diet in terms of vitamins, minerals, adequate amount of protein, and so forth. Vitamin and mineral deficiencies, for instance, can have adverse effects on the embryo before and after it implants in the uterine lining.

A maiden or barren mare out on pasture or hay and not in work can be on a maintenance diet.

"The hay or grass may be adequate for calories to keep her in proper body condition, but she may still need a supplement to provide certain minerals if soil or hay is deficient," Cubitt said. "Something as simple as a ration-balancer pellet may be all she needs."

This could supply whatever might be missing in her diet without adding excess calories.

"Adequate selenium, for instance, is very important for fertility," Cubitt said.

Research in cattle and horses has shown selenium deficiency can increase the incidence of early embryonic death, she noted. Other common clinical signs associated with selenium deficiency include an increased incidence of retained placentas, cystic ovaries, and weak or silent heat periods.

"Much of the (soil in the) U.S. is deficient in this element," she said. "Most commercial feed companies fortify their feeds with selenium."

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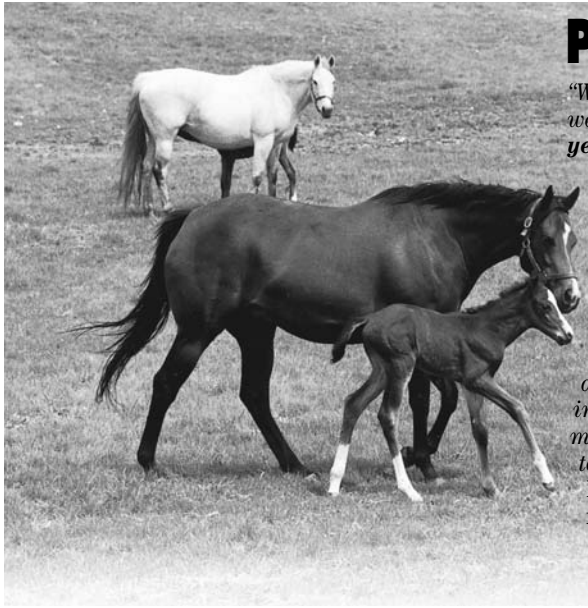
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Organic selenium is typically listed on feed tags as selenium yeast.

Nielsen stressed importance of good-quality feeds that mimic what Mother Nature provides. The natural breeding season for mares coincides with green grass—which has high-quality protein and adequate nutrients for cycling, pregnancy, and lactation for mares under natural turnout conditions.

“Mother Nature is smarter than we

are,” Nielsen said. “If we’re trying to breed mares early, we must try to simulate the kind of diet they’d have during more optimal conditions. I recommend using a commercial concentrate that’s been balanced by equine nutritionists. It has the proper types and amounts of vitamins, minerals, proteins, etc. If you’re trying to create a ration yourself, you might not achieve the same plane of nutrition.”

Cautions

Nutritional therapy for joint problems might be beneficial for an older mare that’s physically uncomfortable, because if she’s in pain, she might not cycle, Gill said.

However, don’t go overboard on supplements in general.

“Stick to the basics. Don’t feed herbs and all sorts of ‘natural’ products,” Gill said. “We don’t know how some of these might negatively affect the mare. Stay away from things that aren’t proven to be necessary unless they’ve been researched and proven safe.”

Some supplements might be counterproductive to successful pregnancy. Keep it simple—and safer.

Also be cautious about following the latest fads.

“You might cause harm in overdoing certain beneficial supplements,” Nielsen said. “Omega-3 fatty acids seem to have a number of advantages for things like arthritis and reproductive issues in stallions. But problems can occur if you try to extrapolate some findings across the board. For instance, omega-3 fatty acids inhibit prostaglandins (a naturally occurring hormone). This is one reason they can be helpful in reducing inflammation in the body. But certain prostaglandins are important in reproductive events, being part of hormonal messages.”

If a horse owner has questions about what might or might not be good broodmare nutrition, Cubitt said it’s best to ask a veterinarian or an equine nutritionist rather than follow the latest fads or advice found online.

“When feeding any horse, we need to mainly think about good-quality ingredients and available sources of nutrients,” she said. “It’s important to use protein sources with high amounts of certain amino acids. Soybean meal or alfalfa can give you the highest level of essential amino acids (that the body cannot make for itself) that must be obtained from feed.”

She also suggests using bioavailable sources of minerals, such as organic selenium or chelated minerals (chemically bonded to an amino acid to improve uptake by the digestive system), rather than something the body cannot readily absorb.

Take-Home Message

Many factors play roles in equine reproduction, but proper nutritional management is a way to try to ensure successful pregnancy.

“Proper nutrition for the broodmare is actually very simple,” Cubitt said. “It’s more difficult to get a mare pregnant than some other species, so we want to do everything we can to set mares up for the best possible chance for pregnancy.”

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