

# Feeding Pregnant Mares



Horse Care

by HEATHER SMITH THOMAS

Over the past two decades, we've learned more about fine-tuning our feeding of pregnant mares and research is still ongoing. Stephen Duren, PhD (equine nutritionist, Performance Horse Nutrition) says conscientious horse breeders have always tried to optimize the health and development of the unborn foal, but the Thoroughbred industry has had more pressure recently, regarding breakdowns at the track, to determine if we can do more to nutritionally prepare young horses for the racetrack.

"Are they getting proper nutrition, starting from conception? The equine industry recently updated its nutrient requirements for horses, and has made some significant advances in gathering up established literature and putting it together—modifying the earlier published requirements," says Duren.

"The nutrient requirements now listed for pregnant mares have changed somewhat since those published in 1989. We used to think of mares as having two stages of pregnancy—early gestation or late gestation. Now the new NRC (National Research Council) guidelines break it down farther. We now look at whether the mare is less than five months pregnant (early pregnancy). After that, pregnancy is broken down month-by-month until foaling. The guidelines have been modified and the requirements fine-tuned for optimum nutrition, making adjustments as necessary, so these mares will get everything that they need," he explains.

"In practicality, we may not change the mare's diet on the sixth, seventh, eighth month, etc. We may not make a conscious modification, but will end up trying to feed mares by body condition score, and feed grain concentrates that are appropriately fortified for pregnant mares," he says. We will be adjusting the amounts of feed to make sure the

mares' diets are properly fortified, but we are now more aware of their needs—and feed manufacturers have reformulated feeds to account for the highest monthly requirement those mares will have.

"Feed manufacturers are now fortifying their feeds in a way they can deliver those nutrients within the normal feeding rates," he says. The horse owner can be assured, when buying a product that is balanced and fortified for a pregnant mare, that it will adequately cover all the bases. Most feed manufacturers have fortified their feeds appropriately so they will work at each stage, or each month, of gestation.

Energy is the one nutrient that must be adjusted to the needs of the individual mare. You'd feed a thin mare a different energy level than an easy-keeping mare or a mare who is lactating as well as pregnant. "Dietary adjustments need to be made so the mare will maintain adequate body condition year-round. In a good broodmare program, the mares should never be allowed to get thin, and never allowed to become fat. This may require two or three dietary changes through the normal pregnancy/lactation curve that the mares go through," says Duren.

If a mare isn't fed enough when lactating, she will lose weight. Changes in her energy needs will be anticipated by a good manager, and she'll be fed accordingly, so she won't lose weight. Bottom line: reproduction is a luxury, rather than a guarantee. "A number of studies have shown that one of the main driving points of reproductive success is body condition of the mare. She needs to have the energy reserve, in order to cycle, to conceive, and then to maintain a proper pregnancy," he says.

"What often happens is that after a mare foals and begins lactation, she'll lose body condition. She may go ahead and cycle, and conceive, but then absorb and lose the pregnancy because she's losing weight every day." Mother Nature decides that she can't afford the luxury of pregnancy when she's losing weight.

"That doesn't generally happen in central Kentucky because this region is normally blessed with a lot of good quality grass, as well as a lot of good feed manufacturers. In some of the more remote areas of the Thoroughbred industry, however, where grass is either limited, or horses are in dry-lot situations, or the natural forage isn't up to quality, it becomes even more important to feed these mares properly."



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Most feed manufacturers make a product that contains adequate energy, vitamins and minerals. "Many will also make a complementary product which contains the vitamins and minerals without all the calories. This is a 'diet' variety for mares who hold condition very well. They still get all the vitamins and minerals, but not as many calories," he says. Young mares or older mares, or any mares who have trouble maintaining condition, can be fed the regular feeds that contain the calories as well as all the vitamins and minerals.

"Most Thoroughbred farms will feed mares individually, especially if they are being brought up every day, being palpated, etc. Even if they are all at pasture, some mares will have different needs, depending on energy efficiency, age, etc. Some mares may have been retired from racing and some may have long-term injuries, such as a knee or tendon injury. When they put on extra weight from pregnancy and walk around on hard, frozen ground, they may become sore. Any time they are sore or trying to heal, those injuries require additional calories because they are all catabolic; without extra energy in their diet those mares would lose weight," explains Duren. Those mares require more energy than a mare who is in the prime of her life and completely sound.

"Most farm managers will separate mares by foaling date, and by energy needs or body condition. If they can't separate them into different paddocks, feeding adjustments are made for individual mares when they are brought up daily and fed. Certain mares will be fed more. Attentive broodmare managers are making changes on at least a weekly basis, or even a daily basis, if a mare gets behind; they don't allow a mare to fall through the cracks and get into a situation where reproductive performance or the health of the foal would ever suffer," he says.

"The Thoroughbred breeding industry has done well in producing quality athletes. There are x-ray repositories at all the major sales, so you can tell what you are buying. A lot of the issues with development and growth are certainly nutritionally related, and many of those start in utero. Most progressive farms are very aware of broodmare nutrition and know that they need proper nutrition from pre-conception all the way through pregnancy. Most farms are quite aggressive in feeding mares, but this doesn't mean the mares must have a large volume of grain. There are concentrated products that contain mainly vitamins and minerals, and calories can be adjusted as needed," he says.

"With many equine nutritionists doing consulting around the world (such as Japan, Australia, Europe, etc.), the technology is truly worldwide—with the use of more than one specific type of feed for broodmares, utilizing both high calorie and low calorie products," says Duren.

"One of the things researchers are working on now is the idea that some of the diseases humans get are due to fetal programming. This all relates to nutrition in very early

pregnancy. In the old NRC recommendations, we used to concentrate on the last trimester, which is the last 110 days of a mare's pregnancy, since this is when most of the fetal growth takes place. But many important things are happening very early in pregnancy and we are now becoming more aware of the need for proper nutrition in early pregnancy. By 20 days' gestation you can see a fetal heartbeat. The heart is completely developed by then, and the brain and other important tissues are developing very early. We've become more aware, with the new NRC, of the importance of nutrition in early pregnancy." With human pregnancy, we certainly don't wait until the last trimester to worry about what the mother-to-be is eating.

"This will ultimately become an important issue in equine nutrition as well," he says. There is no question that the equine fetus is getting some of its signals for future metabolism, etc., from the mare's body. Obese pregnant women may give birth to children who are already pre-programmed to be obese. Some of the problems in horses, like insulin resistance, may be due to the uterine environment in a mare who is being fed inappropriately. The uterine environment in early pregnancy is a large factor in the future health of that foal.

"We are only now starting to realize that how we feed a mare in early pregnancy is just as important as how we feed her in late pregnancy, and addressing this. Typically, my clients have mares on a fortified diet even before breeding season. When the barren mares are put under lights to prepare for breeding, they are on a feed program to adjust body condition as well as provide the required nutrients," says Duren.

"Once those mares conceive, rather than just sending them out to pasture, they are maintained on a feeding program that's adjusted to optimize body condition and provide critical nutrients for foal development. This provides all the fortification they need. As they get into the sixth or seventh month of pregnancy, changes are again made, according to body condition and nutrient requirements, and the feeding program is continually adjusted. Well-managed Thoroughbred farms are very aggressive on feeding management, from prior to conception all the way through pregnancy. They don't allow mares to be underfed vitamins and minerals just because there's a lot of grass. We take that into account, and the fact the grass is providing a lot of energy and protein, but it may not be providing enough trace minerals. We add those to the diet with small amounts of more concentrated feed, rather than giving large volumes of feed, per mare," he explains.

"In summer when the mare is 60 days in foal, some people might just turn her out on pasture and not feed her anything. However, most breeders will not leave nutrition to chance. Instead they would feed the mare a source of vitamins and minerals to ensure the developing fetus has all the building blocks to develop properly. Most breeders not only have the responsibility to produce a sound race horse but also have a significant investment in that individual." You don't want to leave anything to chance. 🐾