



FEEDING THE BROODMARE

For a horse owner, is there an event more special than the birth of a foal? All the effort, worry and money spent are quickly forgotten when a foal is born problem-free. Although there are many uncontrollable factors with reproduction, many problems may be prevented with proper nutrition.

BODY CONDITION

From conception through pregnancy and lactation, the broodmare should maintain a body condition score of 6 (the ribs can be easily felt but not seen). If the mare is too thin, reproduction will be the least of her worries: she is in survival mode. If she lacks the calories she needs for herself, she will not have a foal that will demand more of her. At the other end of the spectrum, an overweight mare risks developing hormonal imbalances which are linked to fertility issues.

Good body condition is essential throughout the pregnancy. Loss of condition indicates that the mare is not receiving enough calories for herself, let alone the developing foal. On the contrary, if the mare is overweight and becomes insulin resistant, the foal may develop bone growth problems which may cause OCD (osteochondrosis dissecans). In fact, in most cases of OCD, the disease appears during pregnancy and is present at birth.

During lactation, the mare's body condition must remain as stable as possible. If she lacks the calories she needs to maintain her own weight, her milk production may be disrupted. Energy requirements increase substantially during this time: a lactating mare's needs are similar to those of a race horse! On average, a mare will need approximately 2 kg additional feed during the first three months of lactation. However, there is no need for weight gain if her body condition score was acceptable at foaling –otherwise she will have to lose the excess later on anyways.

The source of calories is also important to consider. According to several studies, a feed containing high levels of carbohydrates may also affect the foal's development and increase the risk of OCD. It is thought that the insulin response following the intake of large carbohydrate-rich meals is similar to that of an insulin resistant mare. Fat and fibre are preferable energy sources.

PROTEIN

Protein quality is more important than quantity. Proteins are made of chains of amino acids (there are 22 different amino acids). Some of these can be produced by the horse (non-essential amino acids) and others must come from the diet (essential amino acids). Of these essential amino acids, lysine and methionine will be the first limiting amino acids in a pregnant mare and should ideally be added to her ration. They can be found in certain feeds and supplements and, as such, should appear in the ingredient list. Unfortunately, horse feed labels do not always provide the list of ingredients, so do not hesitate to ask your supplier for it.

These same limiting amino acids are equally essential during lactation. A deficiency will result in decreased milk production. A good way to roughly assess a mare's protein and amino acid intake is to check her topline. Poor muscling along the topline is indicative of poor quality or insufficient protein intake. A mare with a poor topline may also have trouble carrying the weight of her foal.

MINERALS AND VITAMINS

All minerals and vitamins are important starting at conception and continuing through gestation and lactation, although in different amounts and ratios for each stage. Even when a mare's body condition and topline seem adequate, she can still suffer from deficiencies—in particular selenium and vitamins—if she is on a hay-only diet. She requires at least a complete supplement. At the time conception, the mare's diet should match her level of exercise, body condition and weight. Ideally, her nutrition should be optimal many months before conception. It may take up to three months to overcome a mineral or vitamin deficiency which may cause fertility problems. Complex B vitamins such as folic acid contribute to the development of healthy follicles and improve fertility.

During the first months of gestation, the mare's mineral and vitamin needs are similar to those of an open mare in the same level of work. It is at the end of the pregnancy (during the last five months) that her requirements skyrocket, for calcium and phosphorus especially, since this is the stage where the foal's bones are formed.

The mare's requirements will also be very high during lactation because large amounts of minerals and vitamins are excreted in her milk. The foal needs high levels of calcium and phosphorus for bone formation, selenium and vitamin E for its immune system, etc. Additionally, complete and balanced nutrition will ensure optimal immune function and the mare will produce higher quality colostrum (an antibody-rich milk).

Chelated minerals, organic selenium in particular, are especially useful in equine reproduction. Minerals in this form are more easily absorbed, cross the placental barrier more readily, and are found in higher concentrations in the mare's milk. Be sure to look for terms such as zinc methionine or selenium yeast in ingredient lists and avoid mineral sources such as zinc oxide and sodium selenite.

OTHER THINGS TO KEEP IN MIND

Some plants that can be found in hay, such as tall fescue, may contain endophytes (a fungus) which produce chemicals resembling mare hormones. This is why extra care must be given to the choice of forage plants used for broodmares. Grains like oats, barley and corn may also be contain mycotoxins (toxins produced by fungi) and must be tested for toxicity levels. These toxins are known to cause diarrhea in horses in general, but in broodmares they may cause return of ovulation, irregular cycles, abortions and dystocia (placental abruption for example).

WHAT ABOUT OMEGA-3s?

Omega-3 fatty acids are useful at every stage of the reproduction cycle: from conception to lactation. Among other benefits, they help improve cognitive function resulting in a smarter foal that learns quickly!

BASIC NUTRITION PROGRAM FOR THE BROODMARE

For the 7 first months of gestation:

- Provide the same feed as before the pregnancy
- Supplement with minerals and vitamins as needed, according to the amount of feed served
- Aim for a body condition score of 6

From 8 to 10 months:

- Continue serving the same feed as in early pregnancy
- Increase the mineral and vitamin intake significantly
- Aim for a body condition score of 6

For the last month of gestation:

- Gradually transition to a lactation feed
- Change supplement if necessary, so that the complete ration reaches a calcium/phosphorus ratio around 2:1
- Aim for a body condition score of 6

During lactation

- Increase calorie intake (on average 2 kg of feed per day; always taking into account the mare's body condition and milk production)
- Increase the mineral and vitamin intake, aiming for a 2:1 calcium/phosphorus ratio and a 4:1 zinc/copper ratio.
- Increase the protein intake to promote milk production

Consider asking a technician or agronomist to help you establish a customized feeding program for your mare. All these variables will be much easier to calculate with a ration balancing program! We also highly recommend conducting a hay analysis so that the content of the main portion of the broodmare's ration is known.

And finally, to put the odds in your favour, don't forget to consult your veterinarian about implementing a deworming and vaccination program for both the pregnant and lactating mare and the growing foal.