

## FEEDING BEFORE AND AFTER FOALING

Dr Jennifer H Stewart BVSc BSc PhD MRCVS Equine Veterinarian and Nutritionist

Considerable time and money is invested in analysing bloodlines and selecting stallions for our broodmares. To allow the mare and her foal to give their best and reach the genetic potential that has been so painstakingly planned, a similar investment of thought and care is necessary after pregnancy is confirmed. Mares have the lowest reproductive efficiency of domestic animals - only 55-60% of positively tested mares produce live foals. Nutrition influences conception; early embryonic loss and abortion; foal vigour at birth; ability to recover from foaling and perhaps conceive again on the foal heat, and the growth and soundness of the suckling foal.

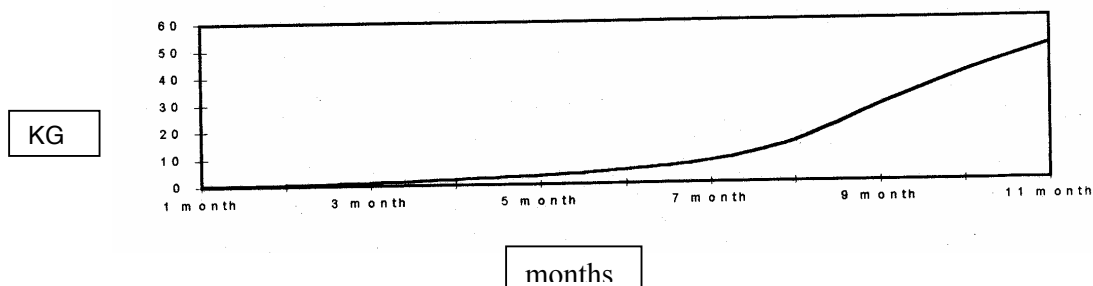
### THE MARE

When broodmares are between 4 and 8 months in foal, most of the weight gain in pregnancy (15% of total body weight) occurs during this period. Body weight and condition need to be monitored - mares that are overweight do not produce larger or stronger foals. However, if a young mare has been underfed and has not reached mature size by the time she is pregnant, she may continue to grow until 7 years of age - hence her needs are greater, to support her own growth as well as the pregnancy.

For all mares it is essential that nutrient requirements are met over winter body to prevent depletion of body reserves. As well as being damaging to general health, protein, energy and mineral deficiencies adversely affect the hooves. The incidence of foot abscesses, white line disease, wall cracks and seedy toe is higher in winter when wet muddy conditions reduce the ability to exercise and create unhygienic conditions. To prevent weaknesses and subsequent pain, lameness and expense, it is essential to provide correct zinc, calcium, biotin and protein and to avoid excesses of selenium and vitamin A - both of which have been linked to hoof cracks and poor quality wall.

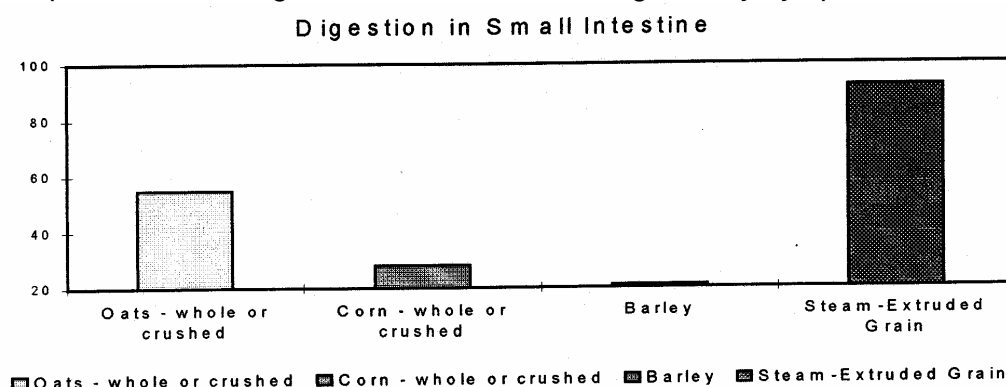
By the 7 - 8th month of gestation, only 17% of foal birthweight has been achieved. Over 80% of fetal growth occurs in the last 4 months of gestation.

Foal Growth During Pregnancy



As the needs for pregnancy increase, appetite increases - giving mares the extra protein, energy and minerals required for the growing foal. However, as the foal grows, it occupies more of the mares abdomen, restricting her digestive capacity. The incidence of abdominal rupture and colics such as caecal impactions, torsions and ruptures, is higher in mares in the peri-foaling period than at any other time. Many of these cases are linked to diet - particularly overfeeding - which can easily occur if the diet is not highly digestible.

Crushing, cracking, pelleting and boiling do little to improve feed digestibility, but pressure-cooking and extrusion increase digestibility by up to 92%.



Increased digestibility and high nutrient density of extruded feeds means a lower weight can be fed - reducing gut fill and assisting in preventing gastrointestinal accidents.

Mares in late gestation are often fed hay that has been in storage for several months - after which time there is significant deterioration in vitamins A, D and E. The late pregnant mare requires 800iu of vitamin E per day and adequate calcium and selenium to reduce the occurrence of retained membranes after birth. Many soils and pastures in Australia are deficient in selenium and iodine, leading to fertility and foal health problems. Supplementation of these minerals is often required, but if total requirements are exceeded, toxicity can occur. Mitavite Breeda, a complete extruded feed with a consistent and guaranteed analysis, has been scientifically formulated and balanced to meet all these requirements and eliminate the risks associated with the use of individual supplements.

### **THE FETAL FOAL**

For the foal, we must be concerned about developmental bone problems. The potential to develop bone diseases starts in late gestation. During the last 4 months, the calcium requirement of the mare increases by 85% and the phosphorus by 100%. Failure to meet these will reduce the strength and integrity of bone development. The absorption and metabolism of calcium and phosphorus are interrelated: an excess or deficiency of one nutrient will adversely affect the other. Diets need to be carefully formulated to ensure adequate levels and the correct ratio of each. This may be difficult if the roughage is 100% legumes (clover, lucerne) or if it is all grass or meadow-oaten hay. A forage containing about 50% legumes is most suitable.

Other minerals that need to be carefully controlled are copper, manganese, zinc and iron. Mares milk is very low in these minerals and for the first 2 - 3 months after birth the foal relies on its own stores, built up during the last 3 months of pregnancy. Pregnant mares on imbalanced diets may be unable to supply sufficient trace minerals for storage and the newborn foal will quickly run out - during the period of most rapid bone growth in it's life.

Research has found that if the pregnant mare does not receive adequate trace minerals it is not possible to make up for this by supplementing the foal after birth - the incidence of physitis and cartilage lesions is the same - whether or not the foals are supplemented after birth. Feed processing also affects mineral, protein and energy absorption. Pelleting has been associated with a reduction in calcium and magnesium absorption, while extrusion increases mineral uptake.

A word of caution on the addition of supplements without full diet analysis. The absorption and metabolism of minerals is interrelated - increasing a single mineral such as copper, negatively affects other essential minerals. For example, the ratio of zinc to copper and manganese to copper must be maintained within a range of 3 - 5 : 1. Feeding several different supplements can lead to 'overlapping' and increased risk of excesses and subclinical toxicities. Often borderline imbalances and deficiencies won't create clinical disease but they affect fertility, ability to reach potential and soundness.

### **THE NEWBORN FOAL**

Recent research has found that nutrition during pregnancy affects the ability of the newborn to absorb the antibodies in colostrum. Protein restriction during the last 90 days of pregnancy has no affect on the quality of colostrum but reduces by 50% the ability of the newborn to absorb colostrum antibodies. However, excess protein places stress on the liver and kidneys and often we do not know the protein content of particular pasture and hay. Pasture and diet analysis are excellent management tools allowing closer matching of feeds to individual needs.

Many mares are underfed during lactation and this affects both foal growth and mare fertility. The regaining of body reserves takes precedence over milk production and hence mares that gain weight during lactation may be poor milk producers. Peak milk production occurs 6 to 12 weeks after foaling and the mare's appetite increases accordingly. Individual requirements depend on age, body weight, condition, exercise level and the environment. Energy requirements increase by 20 - 30% in cold weather, and when pasture is poor, mares must spend more time searching for grass. In these situations the addition of oil is of benefit. Mares have an increased protein requirement when lactating and this is usually met by increased concentrate intake.

Feeding remains an 'art' and a 'science'. Scientific knowledge combined with good horsemanship are the key elements. Mitavite horse feeds are scientifically formulated to complement the knowing eye of experience in the art of feeding. Mitavite toll free on 1800 025487 or email: [mitaviteenquiries@ingham.com.au](mailto:mitaviteenquiries@ingham.com.au)