

Feeding a weaning foal

A foal's diet when it is weaning is important as this is often the limiting factor in the expression of growth potential at this time. Care should be taken over this because nutritional deficiencies or imbalances can compromise the foal's future career.

Separation from the mother is a decisive psychological and behavioural step, and weaning can induce significant stress involving potential loss of status, increased vocalisations, and even aggression and redirected feeding. It may be associated with abnormal behaviour.

by **Pauline Doligez, Catherine TRILLAUD-GEYL** | 03.11.2014 |

Translated from french by : Alison Drummond

Technical level 



© A. Bassaler

Dietary transition

A foal is not a miniature horse!



Feeding a foal © IFCE

Suckling from the mare is a mandatory transition stage before the digestive organs and functions definitively develop. The transition from a milk diet to an herbivorous diet should be gradual.

The mare's milk production generally covers the foal's nutritional requirements for the first three months. After the third month, milk production decreases. If the mare no longer produces sufficient milk, then the foal should receive additional nutrients, both to meet its growing needs but also to prepare for weaning, a period when stress-related undernourishment is common.

The foal's capacity to ingest at this time is insufficient to process for a purely pasture-based diet. Pre-weaning supplementation also allows the foal to become accustomed to ingesting concentrates (cereals or commercial feed).

Recommended intake for weaning foals

Voluntary consumption

Appetite is expressed in terms of kg of Dry Matter (DM) per 100 kg of Live Weight (LV). The appetite or ingestion capacity depends strongly on the energy requirements of the animal, but also on the digestibility and palatability of the feed.

For a **growing foal**, the **ingestion capacity** is:

- For a foal of 3-6 months: 2 to 3.5 kg DM/100g LW
- For a foal of 6-12 months: 1.7 - 2.5 kg DM/100g LW

These values are very high as they are proportionally higher than those required for an adult horse doing intense work.

Quantitative needs

See the INRA tables (*Nutrition et alimentation des chevaux*, W. Martin-Rosset-QUAE 2012)

Between 0 and 2 months:

- 0.039 HFU to 0.044 HFU/kg LW
- 4 to 4.5 g of MADC/kg of LW (for growth of 1200 to 1500 g/day)

Between 3 and 6 months:

- 0.023 HFU to 0.024 HFU/kg LW
- 2.4 to 2.6 g of MADC/kg of LW (for growth of 750 to 1000g/day)

Qualitative needs

Protein

Foals need quality protein. Horses are unable to synthesise Essential Amino Acids (EAA). Most of these Amino Acids come from digesting food in the small intestine. In the large intestine, a quantity of Amino Acids of microbial origin is absorbed, which are full of EAAs.

However, in young foals, absorption in the large intestine is low, hence the importance of external EAAs. Lysine is one of the most indispensable EAAs.

Lysine requirements :

- from 3 to 6 months: 0.054% of MADC requirement
- from 6 to 12 months: 0.087%
- Beyond that: 0.105% of MADC requirement

Live weight gain is high (+18%) when the foal is supplemented with 2 kg of concentrated feed from the age of 4 months. When the protein intake is milk powder or whey rather than soy, the average daily gain is higher.

Minerals

Calcium and Phosphorus: An imbalance in the Ca/P ratio remaining within the range of 1.5 to 2 would have no impact on the occurrence of osteochondrosis.

Copper: In contrast, a **copper (Cu) deficit** is known to encourage the **development of osteoarticular lesions**. Copper is involved in the synthesis of many tissues (tendons) and conditions the development and resistance of bone by stimulating the formation of collagen fibres and bone metabolism.

Recent research shows that a minimum level of 15 ppm (parts per million) in the ration is required, i.e. 1 mg Cu/kg dry feed.

e.g.: total ration of 7 kg of DM => 105 mg of Cu.

In mares, from the seventh month of gestation, the Cu requirements are: 32 ppm/kg ration, i.e. 32 mg x 12 (kg DM) = 384 mg Cu.

Iron: The requirement is 50 mg per kg of DMI (Dry Matter Intake).

Zinc: necessary for ossification, it protects against osteo-articular disorders. Recommendations: 80 to 100 mg/kg evening 560 to 700 mg/animal/day.

The **Zn/Cu ratio** of the ration should always be **close to 5**.

Selenium: this is an anti-oxidant which protects cells from degenerative phenomena. It also contributes towards ossification. Requirements of 0.1 to 0.2 ppm, i.e. for a weaned foal: 1.4 mg/day/animal.

Beware, forages are often very deficient in this regard.

Vitamin A: requirement of 35,000 - 40,000 IU/Animal/day (IU: international unit). Horses are fairly poor at processing the carotenes present in dry forages.

Vitamin D: is involved in osteogenesis by stimulating the synthesis of bone proteins by promoting calcium binding. However, excess is just as harmful as the rare deficiency in horses that live outdoors.

Vitamin E: requirement of 20 IU/100 kg of PV, i.e. 50 to 60 IU/Al/day. Vitamin E acts in synergy with selenium and in maintaining muscle integrity.

Rations for a weaning foal

Method of food distribution

Depending on the expected growth rate, the proportion of forage / concentrate will differ depending on why the foal is being raised.

- Fast growth for racing foals from 2 years old
- Moderate growth for foals that will be broken in at around the age of 3 years: sport and leisure horses

At weaning, it is preferable to keep the same food that was used as a supplement when it was feeding from its mother. The concentrate can then be modified during the winter depending on the quality of the forage distributed at the same time.

In practical terms

If the foal did not receive supplements when feeding from the dam, the concentrate should be gradually distributed in 3 meals at a rate of 500 g/meal. The quantities distributed can then be gradually increased over a 10-day transition period according to the foal's appetite, based on the quantities expected according to the type of production chosen (optimal growth or moderate growth). If the foal has not finished its ration, do not increase the amount of concentrate at the next meal and, above all, remove any refused feed from the feeder at each meal.

Forage will be distributed on a self-service basis to maintain a continuous intake for 24 hours if possible. Otherwise, feeds should be distributed in the morning and in the evening: 1/3 in the morning, 2/3 in the evening, because the horse also eats at night.

Quantities

Concentrates

It is possible to start supplementing young foals with concentrates at about 3 - 4 months of age depending on lactation and grazing quality.

1 to 1.5 kg/foal/day can be distributed at the start, then 0.5 kg/month of age is added until it reaches 2.5 to 3 kg at weaning.

A selective feeder (preventing access to adults) should be used if foals are outdoors, or a separate trough from the mother's for foals in stalls.

Forages

The foal's ingestion capacity at weaning is still low. Forage must be of good quality (alfalfa type) as the quantities ingested will still be moderate.

For a foal intended to be broken in at the age of 3 years, a maximum of 5 to 6 kg gross of hay should be consumed.

Examples of rations

Example of the composition of a concentrated complementary feed to achieve the following characteristics in relation to the foal's requirements:

- 0.93 HFU / kg gross
- 70 g MADC / kg gross

i.e.

- 30% oats
- 42% barley
- 25% soybean meal

- 3% of CMV (Vitamin Mineral Supplement) of type (P-Ca) 8-19 or with a Ca/P ratio of close to 2.

HFU, MADC: see food requirements: general

Rations of foals from weaning to 12 months - racehorses for optimal growth:

Supplementary feed	60%	5 to 5.5 kg gross
Hay	40%	3 to 4 kg gross

Expected growth rate: 750 g/day

Rations of foals from weaning to 12 months - sport or leisure horses for moderate growth:

Supplementary feed	60%	3 to 3.5 kg gross
Hay	40%	5 to 6 kg raw or hay at will

Quantity of total dry matter: 7-8 kg

Expected growth rate: 450 g/day

About our writers

Catherine TRILLAUD-GEYL IFCE

Laetitia MARNAY-LE MASNE Engineer IFCE