Build A Feed Ration

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With so much choice of feeds and supplements available for horses and ponies (and donkeys) nowadays, it's easy to get confused and not know where to start. It can also be easy to get swayed by clever marketing, which is becoming more sophisticated and convincing. This is fine if the product is right for your horse, but how do you know?

As a practising Nutritionist who helps owners navigate the minefield of horse nutrition, I have developed a simple and straightforward 6 step framework to allow an owner to build an optimal feed ration for their horse, pony (or donkey) with their individual needs in mind. This framework can be used by anyone, regardless of their level of nutrition understanding.

Using this framework to build your horse's ration helps avoid the pitfalls of choosing products that might not give your horse a balanced diet, avoids getting caught up with therapeutic supplements before the basic diet is balanced (which is pointless and a waste of money) and generally avoiding 'nutribaloney', my term for nutrition nonsense, which is widespread nowadays.

The 6 steps to building a correct ration

1	Assess condition to determine energy (calorie) needs
2	Choose appropriate (or adjust existing) forage (including hay, haylage, grass) and feed an appropriate amount
3	Balance the forage with one of 3 different types of bucket feed
4	Add salt depending on the exercise
5	Add health supporting supplements if relevant
6	Ensure a clean fresh supply of safe water

1 Assess condition to determine energy (calorie) needs

The first step involves an assessment of the body condition - fat covering – of the horse in front of you and this should be done regularly, for example at two week intervals.

Doing so allows the correct amount of calories to be fed. Nutritionists often call horse dietary energy 'calories' because, despite it not being a strictly correct description, it encourages us to focus on the horse's body fat level rather than thinking about their expressed energy (in their behaviour).

Maintaining a healthy slim body condition is key for good health, so we need to know how to adjust calorie intake to ensure this is the case. Obesity is a growing problem with over half of UK horses now overweight or obese (which increases their risk of a number of health problems). If a horse is overweight i.e. carrying too much body fat, they need less calories, and if they are underweight i.e. have too little body fat, they need more.

Body condition scoring can be used to assess body fat, and a weightape can be used at regular intervals to monitor changes. Weighscales/weighbridges can also be used to monitor changes, but the absolute weight of the horse does not necessarily give us much information about body fat covering. Free guides to body condition scoring can be found online, including in a blog at equinenutritionist.com.

2 Choose appropriate (or adjust existing) forage

Horses evolved to eat fibrous forage and using this to supply as many of their nutrient requirements as possible leads to better psychological and physical health than considering the bucket feed first. Fibrous forage includes grass, hay, haylage and straw.

Choosing appropriate forage allows a healthier ration to be fed. Using low calorie forage for good doers and those with low energy requirements allows enough to be fed to avoid welfare issues from too little forage, and helps keep the gut healthy. Using higher calorie forage for poor doers, hard working horses and others with higher energy requirements allows more nutrients to be supplied via the forage, meaning less concentrate feed is necessary.

Whilst concentrate feed is necessary for some horses, maintaining at least 50% (and preferably more) of their dietary intake as forage and keeping concentrate intake to only as much as is necessary will help keep them healthy and reduce the risk of colic and abnormal behaviour from too little forage. Getting as many nutrients as possible from the forage is a more up to date and species-specific way of feeding horses, compared to the forage to concentrate ratios used in the past e.g. 50:50 for a hard working horse, and 80:20 for a horse in light work.

If hay low enough in energy cannot be found or is not available, the nutritional value including calories can be reduced by soaking (for several, and up to 12 hours), or mixing with hygienically clean wheat, oat or barley straw at a ratio of 1 part straw to 2 parts hay or haylage, to reduce calories whilst maintaining a good fibre intake. If straw is fed, introduce and increase the amount gradually, ensure the horse has good dentition and free access to clean fresh water.

How much forage is an appropriate amount? Ideally feed forage ad lib (free choice) but adjust that for horses who need to lose weight or those prone to putting on weigh easily. Most horses eat between 2 and 3% of their bodyweight in dry matter per 24 hours e.g. 10 and 15kg for a 500kg horse (but some may eat up to 5%). Feed just enough forage to maintain a healthy weight, without allowing your horse to fast (having nothing to eat) for more than 4 hours during the day, and 6 hours overnight (if fed plenty during the day). Fasting over 6 hours at a time increases the risk of stomach (gastric) ulcers.

If intake has to drop below 1.8% bodyweight intake to maintain healthy condition, then the energy content of the forage should be reduced e.g. by changing, soaking hay or mixing with straw. Never feed less than 1% of bodyweight per 24 hours (dry matter, which is 5kg for a 500kg horse) because this will cause health problems. If a horse's weight loss plan requires them to be fed 1.5% of their bodyweight per day or lower, this must be done under the supervision of a vet.

3 Balance the forage with bucket feed

All horses need something in a bucket (or out of the hand) because all UK forage - and most around the world - is short of some essential nutrients. Even if forage supplies enough energy (calories) and protein, it will be short of certain minerals, and if conserved e.g. hay or haylage, vitamins too.

A simple way to choose the correct type of product to balance these shortages in forage is to feed one of the following 3 choices, depending on the horse's energy and protein needs:

1. A multi-vitamin and mineral supplement, mixed with a little of a palatable feed such as a mash, chaff or soaked unmolassed sugar beet OR
2. A feed balancer, which is a concentrated compound feed generally designed to be fed at a rate of 100 g per 100 kg of bodyweight i.e. 500 g for a 500 kg horse OR
3. A concentrate compound feed, generally fed at around 600 g per 100 kg bodyweight i.e. 3 kg for a 500 kg horse. Concentrate straights with either 1 or 2 can also be fed but a greater nutrition knowledge and understanding is required to ensure this is done correctly

Number 1 is relevant for good doers, those who need to lose weight, and those on forage of a good protein quality and/or grass. Number 2 is for horses who need a little more, where the protein quantity or quality is questionable, and good doers in work (exercise). Number 3 is for horses who need significant more calories and protein than their forage can supply, e.g. hard-working horses, breeding horses, poor doers and others with high energy requirements.

	Horse requirements	**Recommended option**	**Typical amount/day for a 500kg horse**	**Notes**
1	Forage supplies enough protein and energy	Vitamin and Mineral Supplement	50g	Mix with palatable chaff/mash/soaked beet
2	Forage is a little short of protein and energy	Balancer	500g	Pellets or meal
3	Forage is significantly short of protein and energy	Concentrate feed: compound (OR straights + 1. or 2.)	3kg	Coarse mix, nuts or chaff mix, fortified with vits & mins

If pellets or nuts are fed, chaff (chopped fibrous feed) can be added to encourage chewing and slow intake rate.

4 Add salt depending on exercise

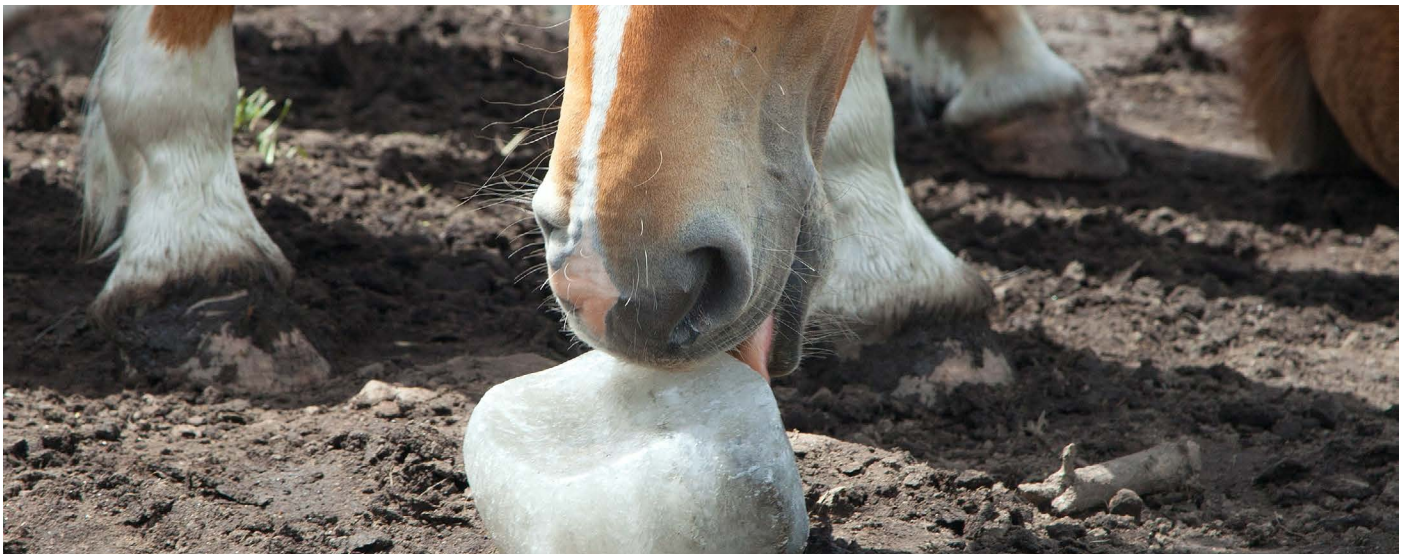
Salt is a common term for sodium chloride, and it is the most important electrolyte to feed (electrolytes are just body salts that are involved in fluid balance). A horse's requirement for sodium and chloride depends entirely on how much they sweat, which in most cases, is associated with exercise. A general guide for how much salt to add is 1-4 tablespoons per 500 kg bodyweight, depending on exercise level (from light to heavy or intense).

The type of salt fed is personal choice. Some owners feed cheap table salt, some prefer sea salt, and some prefer to purchase a horse electrolyte product. For the latter option, be sure it does supply enough sodium and the first ingredient is not sugar (also called dextrose). 1 tablespoon of regular salt supplies around 7 g sodium.

For horses sweating very heavily and/or over longer periods of time a half and half mixture of regular (table) salt and lo- or lite-salt (a mix of potassium chloride and sodium chloride) can be given to replace potassium lost in sweat as well as sodium and chloride. For horses in lighter work levels, the oversupply of potassium from their diet – forage is rich in potassium and oversupplies to most horses – will meet the losses from sweating.

A salt block should be offered to horses out of work, and since sodium is a nutrient they will seek out, they should take in enough this way. For a horse who never touches a block, half to one tablespoon of salt per 500 kg can be given in the feed.

Research shows that exercising horses who are sweating regularly do not always take in enough sodium from a salt block and this is why it is added separately, to the feed. For sodium and chloride replenishment, the salt is not given in water, but in the feed. Salts are added to the water to rehydrate the horse – replace lost water – not to replace lost salt, because for hard working horses, not enough salt can be given in water.



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5 Add health supporting supplements if required

Reaching for a therapeutic supplement before the basic diet is balanced is an error, because the health issue the horse has is likely to be associated with the lack of essential nutrients (from an unbalanced diet). If the basic diet is not balanced (see Step 3) the horse will be deficient in essential nutrients and this shortage needs to be fixed first, before any potential benefits of therapeutic supplements will be seen.

After the diet is balanced, health supporting or 'therapeutic' supplements can be added. There is a lack of good quality evidence for almost all therapeutic supplements, so ideally they need to be tried, the horse assessed, and then a decision made about whether or not the product has helped the horse and will be continued, or not.

Avoid any supplements with medicinal claims either in their marketing or packaging, because this is illegal. Companies who flout the rules cannot be trusted in any other aspect of their product formulation, production or quality control.

6 Ensure a clean fresh supply of safe water

Although not strictly classed as a nutrient, water is essential for life and horses can survive for longer if deprived of feed than if they are deprived of water. Water makes up about 65-75% of an adult horse's body, and about 80% of a foal's. Water is lost in sweat, urine, faeces and breath and is taken in via drinking, in feed and gained from body metabolic processes. Fluid balance in the body is controlled by hormones and the kidneys are involved in maintenance of overall body fluid balance.

A 500kg horse at maintenance in a temperate (moderate to cool) environment, eating a dry diet of hay and concentrate feed requires about 20-25 litres of water per day (about 5 litres per 100kg of bodyweight). Horses often drink more than they need and voluntary intake on that dry diet can be as high as 35 litres.

Keep all water troughs and buckets clean and replenish fresh water frequently, because water can become contaminated easily by bacteria, feed remnants, ammonia gas from stable bedding and suchlike.

In conclusion, following the 6 step framework explained here is a simple, tried and tested method to select a good, well-balanced diet that not only meets a horse's nutrient requirements but supports normal behaviour and the horse's psychological need to chew. Such a well-balanced diet will contribute to optimal health, well-being and performance.