

Feeding Rabbits:



by product specialist
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1. Think "Whole diet"

A Complete Diet.

A complete diet should supply an animal's complete dietary needs, in a form and a way as close as possible to its natural diet and eating habits.

This means that over a period of time an animal should satisfy not only its nutritional needs, but also its behavioural needs, through feeding.

For most animals, foraging for food is such an important part of its life that we cannot disconnect behaviour and food without it being to the detriment of the animal mentally and physically.

It is not necessary to ensure that the entire intake of the animal is "balanced" for nutrients.

It is natural for an animal to have various food sources with varying levels of different nutrients available at different times and they show an amazing ability to even these fluctuations out.

So do not panic if they do not eat the prescribed amount of a food every day. If you have provided them with choice they are most likely to be exercising choice.

We do this ourselves all the time and we generally survive, providing we do not give in to vices and exclude the good things from our diet.

The day I am served up a "balanced" muesli mix, meal after meal put together to somebody's well intentioned idea as to what I need, is the day I will give up the ghost. How do they know what I need?

I may be someone who puts on weight when I look at starch and who lies on the couch all day watching telly, or I may be lean and active and working down a coal mine all day. Do I need the same food in each case?

We think not. However, we can satisfy our animal's needs in nutritional, choice, behavioural and welfare terms, if we offer a diet plan with all these components, to be fed according to the need of the animal.

Diet components should be chosen for a species, with the proportions adjusted according to condition and work.

In the case of furry pets, work can be thought of as activity, body temperature maintenance, pregnancy or lactation.

The Components:

2. Protein Pointers

What is protein? It is a mix of amino acids, which are the building blocks of the protein which is the basis of all bodily tissues.

Protein can be good quality and it can be highly digestible but not necessarily at the same time.

Good quality protein is a protein with a balance of amino acids which matches the job of building body tissues.

To explain this please imagine you are building a wall with bricks and mortar. If you are short of bricks you have mortar left over and can only build a wall as big as the bricks you have, and vice versa.

In the body the leftovers have to be processed which can put a strain on the metabolism and leads to symptoms such as strong urine – which is high in ammonia – and in extreme cases stress on the liver or kidneys.

A high quality protein can be quite high in percentage terms but due to the ease of metabolism cause less stress than a lower percentage, lower quality protein.

In turn the higher quality protein will enable an exercising animal to renew more muscle and develop more muscle, increasing fitness.

Digestibility of protein dictates how available the protein is to an animal.

If you have a protein of high digestibility it suggests it is highly soluble such as cereal protein or meat or fish protein.

Cereal protein is arguably the least attractive as it is both soluble and thus available in a rush, but also of lower quality and so needs more processing and has more undesirable by-products.

Fish or meat protein is very available and of high quality but obviously totally unsuitable for an obligate herbivore such as a rabbit.

Forage protein has the benefit of being of very high quality but only approximately 50% to 60% available and thus has a low impact on the metabolism.

The indigestible portion of the protein is unavailable to the animal as it is part of the plant structure; however it is available to the microbes in

the hindgut and they take the strain out of its digestion by doing it on behalf of the animal.

Thus the animal can absorb amino acids from the microbes lower down its digestive tract.

So we can feed more protein in a forage form than in a soluble form and get the benefits without the stress on the organs of the animal.

This is hardly surprising as this is what the gut of a herbivore is designed to do.

If we think back to natural habitats and feed accordingly we can generally reduce the risk of metabolic diseases.

High protein is generally thought of as a bad thing but within reason it is a good thing if it is high quality and of low digestibility.

3. Thinking Vitamins

Vitamins are essential elements in the maintenance of health. They are good for you!

But that does not mean that more than your daily requirement is better for you. In some cases it is bad.

In feed manufacturing it is customary to add a vitamin mineral premix, which is usually a mix of synthetic vitamins.

Some of these vitamins deteriorate gradually from the day of manufacture and to cover this angle a six month date is put on animal feeds as a date until which these vitamins are present.

Vitamins are included in a feed at a level to ensure that the full daily requirement for all vitamins is available right to the end of the six month "life" of the feed.

There are potential pitfalls with this policy. Some vitamins may be included at a rate of 3-4 times the recommended daily requirement in some cases and no account can be taken of the animal that eats a lot and the one that eats very little.

Thus the potential for over dosing and under dosing is inherent.

If you subscribe to the theory that the commercial world knows best you will not worry, but there are serious questions being asked about vitamins D and A both of which are toxic when over fed.

There is some disagreement as to which is the most



toxic and in my opinion it is a pointless competition. Suffice it to say that too much of each is not good.

There is a serious problem with the sourcing of both vitamins for obligate herbivores as the source for both is fish oil.

"Is there an alternative to the use of synthetic and inappropriately sourced vitamins?" I hear you ask.

As far as vit A is concerned the safe alternative is to feed green forages which are naturally very high in beta carotene which is the precursor of vitamin A.

When eating a green plant the herbivore will **only** convert its requirement in vitamin A from beta carotene.

Vitamin d (now thought to be more a hormone than a vitamin) comes in two forms: D3 which is the form we all utilise and synthesise from sunlight and the precursor for which is sourced from fish oil; and D2 which is synthesised from its precursor found in plants which have been irradiated with ultra-violet.

The irradiated plant could take the form of yeast cells exposed to ultra-violet in a laboratory or sundried forage (hay)exposed to the sun.

So what does your average rabbit need in the way of vitamin D supplementation?

In the summer less than an hour of strong sunlight per day will be more than enough to synthesise enough vitamin D to supply all its needs and store enough in its liver to see it through to the depths of winter.

This can be supplemented with a sun lamp for indoor rabbits.

The liver has an amazing capacity for vitamin D storage.

Alternatively if you have a good

supply of sundried hay from a reliable source this will contain enough, ergocalciferol the precursor of ergosterol (vit D2) to supply all the vit D requirements of your pet.

Further supplementation should be totally unnecessary and possibly harmful.

There are as usual, exceptions to this rule. Birds, reptiles and some apes (but not humans) cannot utilise vit D2 effectively and thus they do need fish oil, eggs or animal-derived D3 if they are not kept in an environment lit with adequate ultra violet B.

The role of vit D is in the balancing of calcium and phosphorous to enable the production of bones and teeth.

Inadequate vitamin D will lead to weak bones and rickets whilst excess vitamin D will lead to the deposition of calcium crystals in soft tissues and the kidneys.

It is interesting to consider the bad press the wonderful forage alfalfa has due to the high levels of bioavailable calcium and the often stated risk of the deposition of calcium in the soft tissues and kidneys.

This appears to be a problem mainly in the United States where large amounts of the very cost effective alfalfa hay are fed.

This hay has more than enough vitamin D present in its naturally occurring form for any herbivore.

However it is also fed with cereal feeds with synthetic vitamin D levels recorded to be as much as 3 to 4 times the animal's daily requirement.

It does raise the question as to whether the problems arise more from the massive overdose of vitamin D rather than the levels of calcium present. Sadly I do not have the answer.

However the fact that it is generally

accepted that in a rabbit being fed a diet deficient in vitamin D it is unlikely any symptoms for this deficiency will be seen as the rabbit is more likely to die from other causes before the deficiency would manifest itself, suggests that there is more risk from overdosing than underdosing. Put another way, it would have to be a very old rabbit to suffer from serious rickets.

As a guide for rabbits we would recommend a diet based largely on sundried and artificially dried grass with an inclusion of alfalfa or lucerne as we like to call it.

For chinchillas and cavyes we would pass on the lucerne but select the grasses very carefully.

As a footnote to aid your decision making process: Vitamin D is a very effective and increasingly used ingredient in rat poisons.

I think I fall slightly on the side of not overfeeding it.

**Tim Warren,
MD of Proper Food 4 Pets :**

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