



Rabbit Care: Diet and Nutrition

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Rabbits make intelligent, friendly, and quiet house pets. The average life span for a bunny is seven to 10 years, with records of up to 15 years of age reported. The following information is provided to help you enjoy a happy, healthy relationship with your little friend.

NOTE: *The diet recommendations in this care sheet are directed towards the pet rabbit and not the production rabbit, such as those raised for meat or fur. The dietary requirement for rabbits in a production situation differs because more rapid than "normal" weight gain and body growth is desired.*



Normal Rabbit Weight

What was considered a normal rabbit weight in the past has been an overweight rabbit. Obesity is a problem with rabbits that eat a diet too high in calories and don't get enough exercise, [enrichment, and proper housing](#). A healthy rabbit should be slim and sleek, and you able to feel the ribs just under the skin without a thick layer of fat. The hindquarters should not have any folds of skin covering or interfering with the digestive tract or urinary openings. The dewlaps in females should not interfere with grooming or eating. If you are in doubt about your rabbit's proper weight, please consult your veterinarian.

Cecotropes

Rabbits are herbivores (plant eaters) with a marvelous gastrointestinal (GI) tract that can extract nutrients from various sources. Rabbits are meant to live on a diet composed of large quantities of grasses and leaves. They also graze on flowers and fruits that can be found at different times of the year.

Rabbits succeed at making the most out of the foods they eat, foods that many other animals cannot digest. One of the keys to their success is the production of cecotropes, which are a type of dropping that is eaten by the rabbit directly from the anus and then digested. These droppings are not made up of waste materials but instead are rich in organisms that have come from the area of the intestinal tract called the cecum. These organisms are packed with nutrients such as amino acids (the building blocks of proteins), fatty acids, and various vitamins. The cecotropes, including the organisms, must be eaten and digested for the rabbit to get these nutrients. In this way, rabbits can extract the maximum nutrients from low-energy food materials. They literally produce some of their own food.

Healthy rabbits will eat their cecotropes directly from the anus, and you won't see these droppings in the cage. If a rabbit has a medical problem that prevents them from reaching the anus, then you may see cecotropes on the cage floor.

Cecotropes are elongated, greenish in color, coated in mucous, and have a strong odor. If a rabbit eats a diet too rich in nutrients, such as primarily commercial pellets, or a diet excessively high in fruit, a few cecotropes may be found in the cage. If you see many cecotropes in the cage, consult your veterinarian, as this is abnormal.



Hay

There are two basic types of hay available: grass and legume.

Rabbits are designed to live primarily on a diet of grass and leaves, and hay can provide a good portion of that diet.

Grass hay

Grass hay is the most important part of your rabbit's diet and should always be available in their cage. Grass hay is appropriate for all ages of rabbits, starting at weaning, and is important for your rabbit's health in many ways:

- It is rich in nutrients such as vitamins, minerals, and proteins.
- Provides "food" for the micro-organisms that make up the cecotropes.
- Provides indigestible fiber that promotes healthy motility (movement of contents) of the intestinal tract.
- Provides healthy chewing activity to promote proper wear of the teeth (a rabbit's teeth grow continuously throughout life).
- Chewing also provides healthy mental activity and a full feeling in the stomach, which decreases chewing inappropriate objects such as furniture and wallpaper.

Grass hays are made from timothy, meadow, oat, rye, barley, or Bermuda grasses. Try to feed mixed grass hay or provide two or more individual types. It is much preferable to feed a variety of grass hays if available. Grass hays are the healthiest and are rich in nutrients while providing the lower energy diet for a house rabbit. If you have a choice, choose sun-dried hay, which retains more nutrients than commercially dried hay.

Legume

Legume hay is made from alfalfa, clover, peas, beans, or peanuts. These types of hay are loaded with nutrients but have more calories, calcium, and protein than an adult house rabbit needs. Feeding only legume hay may lead to gastrointestinal and urinary disorders and obesity. If you mix legume hay with grass hay, your rabbit may only pick out the calorie-rich legume hay and thus overload themselves with calories, so mixing the two is not recommended.



Alfalfa

Alfalfa hay used as a treat is fine but shouldn't be used as the routine hay source for the average adult house rabbit.

No Straw

Do NOT feed straw. Straw lacks most nutrients and will lead to serious nutritional deficiencies if it is a major part of your rabbit's diet.

Sources for hay include veterinary clinics, horse barns, feed stores, pet stores, rabbit clubs, and many online stores.

- If you buy from a feed store or horse barn, select hay that has not been on the top of the pile to prevent animal or bird-dropping contamination.
- Buy hay that smells fresh; never buy damp, moldy, or old hay.



Store hay in an open bag in a dry place with good air circulation. Hay can be given to your pet in various ways, including in a hay rack attached to the side of the cage, in a box or basket within the cage or exercise area, or even placed in the litter box.

Rabbits often pass stools when eating, and placing some hay in the litter box can help with litter box training. They will not eat soiled hay, so you need not worry about sanitation. Always keep hay in the cage or exercise area and replenish as needed. You can also stuff hay into toilet paper rolls and other hiding areas as a fun way to increase mental exercise associated with foraging for food. Providing a regular source of grass hay is a major key in preventing many diseases in a pet rabbit.

A Word About Angora Rabbits

Angora rabbits have diet requirements different from other rabbit breeds. While some alfalfa or legume hay is recommended, consult your veterinarian about the best complete diet for your Angora.

Green Foods

Green foods are the next most important food in your rabbit's diet. Green foods provide all the same benefits listed for hay. They also contain a wider variety of micronutrients and provide water in the diet, as some rabbits do not always drink as much as they should. Feeding green foods forces the rabbit to take in liquids and thus helps promote healthy GI, kidney, and bladder function. You will notice that if you feed your rabbit a lot of green foods, they may drink less water, which is normal.



Feeding your rabbit a diet comprised primarily of green foods is never appropriate. The green foods in grocery stores do not have enough concentrated calories to sustain a rabbit's normal body weight when used as the primary food source. In the wild a rabbit would eat dried grasses and tree and bush leaves to obtain more calories. Greens are an important addition to the diet but should never be the total diet.

Start your rabbit on hay first if your rabbit has never eaten green foods before. This will help to make the appropriate changes in the flora (the stuff in your rabbit's tummy made from the greens they eat) of the gastrointestinal (GI) tract, including improving movement and production of cecotropes. In this way, you can avoid the problem of soft stools that are occasionally seen when you give greens to a rabbit that has never eaten hay or greens. This is not usually a dangerous disease; it is the rabbit's intestinal tract changing from sluggish to

more active. However, these soft stools can be messy, so changing to hay first for a month at a minimum will avoid this problem. Greens are appropriate for any rabbit of any age if the rabbit is already eating hay daily, as mentioned above.

Some resources, such as rabbit breeders, books, or websites, advise against feeding greens to rabbits under six months of age. Your veterinarian is the best informational source for feeding guidelines for your rabbit.



When selecting and using green foods, follow these recommendations:

- Buy (or grow) organic if possible.
- Wash any green foods first.
- Make sure your rabbit is eating hay well first.
- Introduce greens a little at a time over several days and watch the stools for any change.
- Feeding a variety of at least three green foods daily provides a wider range of micronutrients and mental stimulation for your rabbit.
- Feed a minimum of about one packed cup of green foods per two pounds of body weight at least once a day, or divide this amount into two daily feedings.

Occasionally, you may have a situation where a certain green food causes a soft stool. You will know if this is the case within 12 hours of feeding the offending food. If you are feeding a variety of greens and unsure which one is causing the problem, feed only one green food every 48 hours until the offending food is identified, then remove it from the diet. This is not usually dangerous, but it can be messy, and there is no need to give food that is causing a problem. If this occurs, you should consult with your veterinarian.

There are many green foods that you can offer your rabbit. This would include grass you grow in your yard but should be fed only if no pesticides or other chemicals have been used. Consider growing a patch of grass for your bunnies. If not treated with chemicals, dandelions are an excellent source of nutrition.

The darker green a food is, the higher the nutritional value. This is why, for instance, iceberg lettuce is not recommended. It is not dangerous but is low in nutritional content. You can use packages of mixed salad greens if they contain dark-colored greens and are not comprised primarily of iceberg lettuce or romaine lettuce. Please, no salad dressing.

Green foods you might consider:

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| • Baby greens | • Endive |
| • Bok Choy | • Escarole |
| • Borage Basil | • Kale |
| • Broccoli (leaves and top) | • Leaf lettuce |
| • Brussels sprouts | • Mustard greens* |
| • Cabbage (red, green, Chinese) | • Parsley (Italian or flat leaf best)* |
| • Carrot/beet tops | • Radicchio |
| • Celery (leaves are good) | • Romaine lettuce |
| • Chickory | • Swiss chard (any color)* |
| • Collard greens | • Watercress |
| • Dandelion greens and flowers | |
| • Dock | |

Vegetables marked with an asterisk (*) in the list above have a higher oxalic acid content, and it is recommended they be fed in rotation with other leafy greens.

Oxalic acid is a naturally occurring substance found in some fruits and vegetables and can contribute to the formation of kidney stones. Feeding foods containing oxalic acid in small amounts, along with plenty of green, leafy vegetables that do not have oxalic acid, is recommended for your bunny.

Fruits and Other Vegetables (Treat Foods)



Wild rabbits would have access to additional foods such as fruits, vegetables, and flowers, depending on the time of year. These should only be a minority of the diet; feeding these treats in limited quantities is recommended. Some rabbits like these foods so well that they will eat them to the exclusion of all others, thereby creating a potential for health problems.

*TIP

Find at least one food in this list that your rabbit likes and feed a small amount daily to check on how good your rabbit's appetite is. If your rabbit will not eat their treat food, then there may be other problems brewing and you need to keep a close eye on your pet for health problems.

These treat foods are far healthier (and less expensive) than commercial treat foods sold for rabbits. Commercial treat foods are loaded with starch and fat and, if fed in quantity, can cause serious health problems, so they are best avoided. Read the label on any treat food to make sure the ingredients are not primarily based on grains. Sticking to natural and healthy treats for your rabbit is a better alternative.

For treat foods, follow the same guidelines listed above for selecting and using green foods except for the amount. You can feed your rabbit one teaspoon per two pounds of body weight per week of any combination of the foods below. Foods from this list can be fed daily, and you may even wish to use them as part of a reward or training system

- Apple
- Bean or alfalfa sprouts
- Blackberries
- Blueberries
- Cactus fruit
- Carrots
- Cherries
- Cranberries
- Green or red bell peppers
- Kiwi Fruit
- Mango
- Melons
- Papaya
- Pea pods (flat, NO peas)
- Peach
- Pear
- Pineapple
- Raspberries
- Squash
- Edible flowers from the garden (organically grown and not from a florist), such as roses, nasturtiums, daylilies, pansies, and snapdragons

Dried fruit can also be used, but since it is so concentrated, use only one-third of the amount as fresh.

Forbidden Foods

A diet of grass hay and green foods with small amounts of fruits and vegetables contains all the nutrition necessary for your pet rabbit. Unfortunately, there are many commercial treat foods sold for rabbits that contain high levels of starch and fat. In addition, some people still feel it is necessary to feed rabbits high-starch foods such as cereals, cakes, and cookies. Although a pet rabbit can eat small amounts of starchy or fatty foods without ill effects, the problem is that people often feed excess amounts because the rabbits eat these foods so

greedily. It is recommended to completely avoid high starch and/or fat foods for your rabbit. This way, you will avoid any potential problems these foods can cause, including obesity and serious GI disease. It is always easier to prevent than to treat a disease.

Examples of high-fat and/or starch foods to avoid include:

- Breads
- Cereals
- Chocolate
- Corn
- Nuts
- Oats
- Peas
- Refined sugar
- Seeds
- Wheat
- Any other grains not listed



Commercial Rabbit Pellets

Rabbit pellets should generally only comprise a small portion of your pet rabbit's diet. There are much healthier commercial rabbit pellets available now than 20 or more years ago. Then, all the pellets were alfalfa and grain-based, and although they successfully produced fast-growing rabbits that put on weight quickly, they caused several serious problems for pet rabbits.

Rabbits should be fed uniformly extruded pellets, and pellet mixtures should be avoided. Rabbits will always choose to eat the tasty parts, leaving behind the nutritious extruded pellets

When a concentrated, uniform food source is fed to the exclusion of anything else in the diet, problems can occur:

- High-calorie content can lead to obesity. It's easy to overfeed because the rabbit is always acting "hungry." Unfortunately, the concentrated and small form of the pellets does not lead to a feeling of fullness that a diet based on grass hay can provide. Even though rabbits should eat according to their caloric needs, in captivity with boredom, they will overeat pellets if they are provided free choice.
- Low, indigestible fiber content can lead to a sluggish GI tract and eventually more serious GI disease, including ileus or dysbiosis (which means changes or imbalances in gut bacteria).
- Doesn't promote normal tooth wear due to the concentrated nature of the food – a couple of chews and the food is pulverized instead of the much longer chewing time to break down hay or greens.
- Lack of sufficient chewing activity and a "full feeling" in the stomach due to the concentrated nature of the food may lead to behavioral problems, such as inappropriate or excessive chewing on furniture, plants, and floorboards. This could be likened to a sense of boredom. Rabbits in the wild spend much of their day eating, and pellets can be eaten in a few minutes.
- The concentrated, dry nature of pellets may not promote normal water intake, resulting in potential urinary tract diseases such as "toothpaste" or sludgy urine. A rabbit's natural diet would not be this consistently low in moisture.

The recommendation for feeding pellets would be to comprise 10% of the healthy rabbit's diet and maximally no more than 20%. Sometimes, it may be necessary to feed a higher amount for these reasons:

- To implement weight gain most often related to a debilitating illness such as end-stage dental disease.
- When unable to feed a varied diet of good-quality grass hay and a variety of green foods, pellets will help to cover some of the trace nutrients that might be missed in a restricted diet.



When selecting a pellet, look for:

- 18% or higher in fiber
- 2.5% or lower in fat
- 16% or less in protein
- 1.0 % or less in calcium
- Do not buy pellet mixes containing seeds, dried fruits, or nuts
- Buy pellets based on grass hays (timothy, orchard grass, brome, etc.), not alfalfa hay (your veterinarian will advise you if an alfalfa-based pellet is needed for situations in ill rabbits where weight gain may be needed)

A recommended amount of pellets for healthy rabbits, other than giant breeds, is approximately $\frac{1}{4}$ cups per four lbs. of body weight daily. This can be divided and fed twice a day or fed once daily. Pellets can even be fed individually and used in a training program. For dwarf bunnies, a $\frac{1}{8}$ cup daily maximum is recommended. The amount should be less if your rabbit has medical issues.

Eliminating pellets from the diet may be preferable for rabbits with chronic GI problems or excessive weight issues.

Water

Water should always be available and changed daily. Dirty water containers can be a breeding ground for bacteria. Use either a water bottle or a heavy bowl that is weighted or secured to the side of the cage so it does not tip over. Research has shown that most rabbits prefer to drink from a bowl, so a bowl should always be offered. Some rabbits are not used to a bowl and need water from a bottle. Do not use medications or vitamins in the water because your rabbit may not drink if the taste or color is altered. Water consumption may be minimal if your rabbit eats enough greens.

Vitamins/Lactobacillus/Enzymes

Vitamins are unnecessary for a healthy rabbit. Rabbits will obtain all the vitamins they need from their cecotropes, grass hay, green foods, and small amounts of pellets. The misuse of vitamins can cause serious disease. Your veterinarian may prescribe vitamin therapy if your rabbit becomes ill, particularly if they cannot eat the cecotropes. Do not use supplemental vitamins in a healthy pet. In addition, rabbits on a healthy diet do not need a salt or mineral block; their use has been associated with severe disease.

Lactobacillus or acidophilus are bacteria found in the GI tracts of several species.

Past recommendations were to feed rabbits yogurt (which contains active cultures of these organisms) to improve their GI tract health. However, there is no benefit to feeding these bacteria to rabbits because Lactobacillus does not hold an important place in the rabbit GI tract, and adult rabbits may not adequately digest dairy products.

Other products called probiotics, which contain bacteria more specific to the rabbit GI tract, are available, but their benefits are still controversial. A rabbit on a healthy diet of grass, hay, and green foods should be able to maintain a normal population of bacteria without additional supplementation. Routine use of probiotics in rabbits is not recommended.

Some older texts recommend feeding rabbits digestive enzymes, such as pineapple juice, to help dissolve hairballs. This does not benefit the rabbit because such products do not dissolve hair.



It is always best to consult with your veterinarian if you have questions or if you need feeding recommendations for your pet rabbit or rabbits.

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