

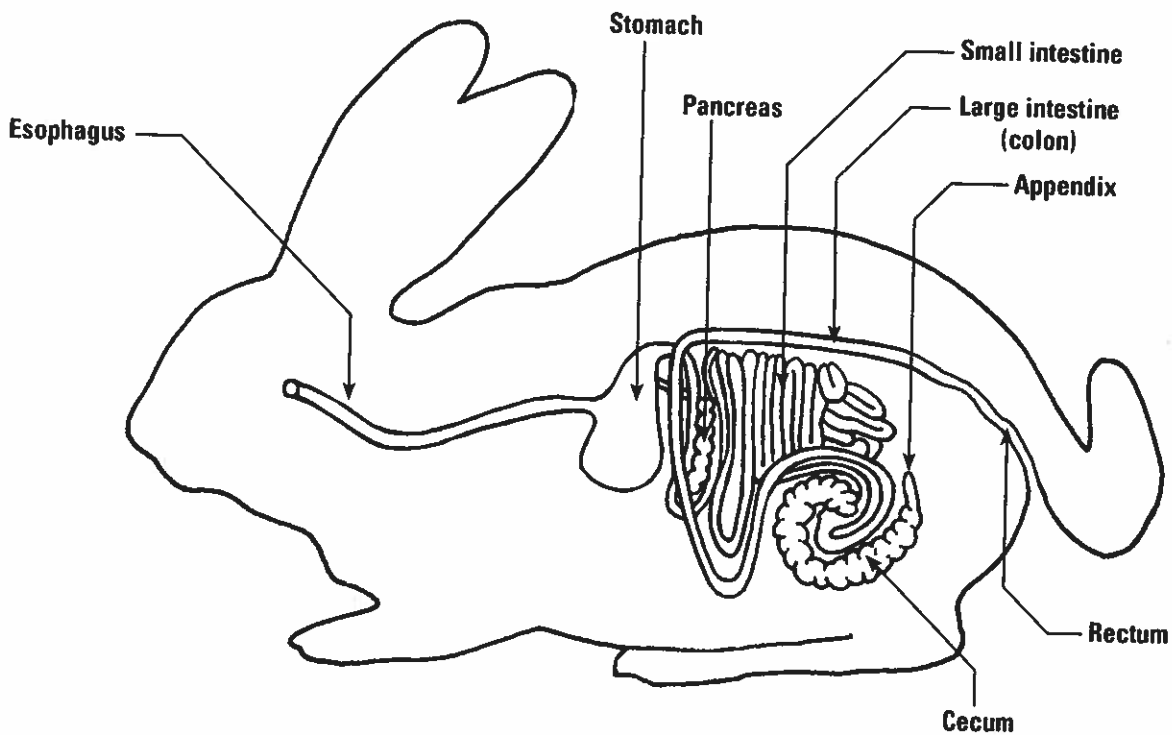
# Chapter 6

## Nutrition

**F**eeding your rabbit a proper, well-balanced diet is an essential part of raising a healthy animal. Proper feeding affects the quality of a rabbit's fur or wool, its meat quality, and its overall **condition**. Information in this chapter teaches you about the rabbit's digestive system, the essential nutrients required by rabbits, and how to feed a well-balanced diet.

### Digestive System

Rabbits are **monogastric herbivores**. Their stomachs are non-compartmentalized, similar to humans and pigs. They also have an enlarged cecum and colon (hindgut), like that of the horse and guinea pig. Bacterial growth occurs in the hindgut and is somewhat similar to the rumen of cattle and sheep. The bacteria in the hindgut plays a significant role in the digestive process, nutrient requirement, and the types of feedstuffs rabbits can utilize.



Bacteria in the gut of the rabbit do not synthesize essential amino acids. Therefore, the rabbit is dependent on essential amino acids provided in its diet. Fiber digestibility in the rabbit is low (Table 6-1). How can a rabbit make use of fibrous feeds, since it digests fiber so poorly? It is important to recognize that fiber only makes up about 20%–25% of forages. A forage, like alfalfa meal, is 70%–80% non-fiber. The rabbit can efficiently digest the non-fiber portion and excrete the fiber portion. Fiber as an energy source is not useful for rabbits; however, fiber plays an important role in preventing enteritis (diarrhea). Supplying dietary levels of 17%–19% fiber will provide a healthy environment in the gut and allow for proper digestion. Dietary fiber will also reduce or prevent fur chewing.

Table 6-1. Digestibility of Fiber of Alfalfa Hay by Various Animals.

Animal	Percent Fiber Digestibility
Cattle	44
Sheep	45
Goats	41
Horses	41
Pigs	22
Rabbits	14

Adapted from Maynard, L. A., et al. 1979. *Animal Nutrition* (7th ed.). McGraw-Hill Book Co., New York p. 31.

### Coprophagy

An instinctive behavior of rabbits called **coprophagy** (cecotrophy or refection) is the act of eating their fecal pellets. Actually, the rabbit is not eating feces, but is eating cecal pellets called **cecotropes** (also called night feces). Cecotropes are soft, moist pellets secreted in grape-like clusters, covered by a gelatinous membrane, and produced by the rabbit's cecum.

Coprophagy is necessary for the rabbit to complete the digestive process, allowing efficient utilization of the hard-to-digest cellulose in plants. It is also an important way of providing the B complex vitamin requirements.

### Nutrients

Nutrients for rabbits can be grouped into six categories:

- Water
- Protein
- Carbohydrates
- Fats
- Minerals
- Vitamins

#### Water

Water is often referred to as the most important nutrient. Rabbits should have unlimited access to fresh, clean water. Water is essential for the functioning of normal body processes and for proper utilization and absorption of nutrients.

#### Protein

Protein is a major component of animal tissue such as muscle, cell membranes, some hormones, and all enzymes. The building blocks that make up proteins are called amino acids. The rabbit cannot synthesize these essential amino acids, which therefore must be provided in the diet. These essential amino acids are listed below:

- Arginine
- Histidine
- Isoleucine
- Leucine
- Tryptophan
- Lysine
- Methionine
- Phenylalanine
- Threonine
- Valine

#### Carbohydrates

Carbohydrates provide energy in rabbit diets. Energy is expressed in calories. Starch and cellulose are the two most important carbohydrates in rabbit feed.

Cereal grains, especially corn, are a major source of carbohydrates. However, if fed in the diet at too high levels, carbohydrate overload in the hindgut can occur, leading to enteritis. Energy levels of 1,100 to 1,150 kilocalories will decrease the risk of overloading the hindgut.

