

# 4-H Rabbit Manual

**The 4-H Pledge**

“I pledge:

My Head to clearer thinking

My Heart to greater loyalty

My Hands to larger service

My Health to better living

For my club, my community and my country.”

**The 4-H Motto**

Learn to do by doing

**Provincial 4-H Office**

5653 Hwy 6 N, RR 5

Guelph, ON N1H 6J2

1-877-410-6748

PH: 519-824-0101

FX: 519-824-8759

Email: [inquiries@4-hontario.ca](mailto:inquiries@4-hontario.ca)

**Website**

[www.4-hontario.ca](http://www.4-hontario.ca)



***This project was produced and written by BC 4-H, and was released through the Canadian 4-H Council Resource Network.***

Thank you to Karen Killman for reading through, and editing the project for use by 4-H Ontario.

Release Date: December, 2009

*4-H Ontario grants permission to 4-H volunteers to photocopy this 4-H program resource for use in their local 4-H program.*



## TABLE OF CONTENTS

<b>Introduction.....</b>	<b>2</b>
· Record Keeping .....	2
· Animal Care .....	2
<b>Project Selection.....</b>	<b>3</b>
· History.....	3
· Breeds.....	3
· Tips for Purchasing a 4-H Project Animal .....	9
<b>Feeding and Nutrition.....</b>	<b>10</b>
· Digestion.....	10
· Food Nutrients.....	11
· Classes of Feed.....	12
· Feeding Program Design.....	14
<b>Facilities.....</b>	<b>15</b>
· Housing.....	15
· Materials .....	17
· Other Equipment.....	18
· Sanitation.....	20
· Ventilation and Temperature .....	21
<b>Husbandry and Health.....</b>	<b>22</b>
· Husbandry .....	22
· Identification .....	22
· Nail Trimming.....	23
· Disease Prevention .....	23
· Common Rabbit Health Problems .....	24
· Administration of Medications .....	28
<b>Breeding.....</b>	<b>29</b>
· Selecting Rabbits to Breed .....	29
· Principles of Breeding.....	30
· Pregnancy .....	31
· Kindling.....	32
· Weaning .....	33
· Record Keeping .....	34
<b>Showing Rabbits.....</b>	<b>37</b>
· Handling .....	37
· Training.....	39
· Grooming.....	40
· Showmanship .....	40
<b>Marketing .....</b>	<b>46</b>
· Marketing Rabbit Products .....	46
· Advertising.....	47
<b>Glossary .....</b>	<b>48</b>
<b>References.....</b>	<b>55</b>



# Introduction

Welcome to the 4-H rabbit project. This project is organized to provide experience for young people in the selection, feeding, husbandry, and exhibiting of rabbits. Handling live animals, watching them grow, and learning how to care for them has value far beyond that of competition. This fact should be kept in mind by the 4-H Club member at all times.

## **Record Keeping**

Record keeping is a very important part of 4-H project work. Records should be kept accurately, neatly, and continuously. The completed 4-H record book should tell the complete story of the 4-H project from the time it was born or purchased until the end of the project. A completed record book is necessary for 4-H Achievement.

## **Animal Care**

4-H members are responsible for providing the highest quality of care for their 4-H project(s). This can be achieved by ensuring that the “Five Freedoms” of animal care are being provided.

## **Five Freedoms**

1. Freedom from Hunger and Thirst - provide access to fresh water and adequate feed.
2. Freedom from Discomfort - provide appropriate shelter from the elements and a comfortable resting area.
3. Freedom from Pain, Injury or Disease - take steps to prevent accidents and disease, monitor health, and provide rapid treatment when disease or injury is detected.
4. Freedom to Express Normal Behaviour - provide sufficient space and company of the animal's own kind.
5. Freedom from Fear and Distress - ensure conditions and treatment which do not alarm the animal.



# Project Selection

## History

Rabbits are small mammals closely related to hares and picas. This group of animals is known as the Lagomorphs. There are many species in the rabbit family but all domesticated rabbits are believed to have descended from a single species known as the European Rabbit. Breeding of rabbits in captivity first began in the Middle Ages, when they were first considered farm animals. By the 1500's selective breeding resulted in several distinct breeds. The exhibition of rabbits and the keeping of rabbits as pets was popularized in the 1800's. People worldwide raise rabbits for a variety of purposes including: food, wool, fur and pet stock.

## Breeds

In North America there are approximately 50 recognized breeds of domestic rabbit. The American Rabbit Breeders Association (ARBA) sets official breed standards for recognized rabbit breeds. These breed standards are published in a guide called the Standard of Perfection. For detailed information on rabbit breed standards, 4-H members should consult the ARBA website and publications.

## Common Rabbit Breeds

There are too many rabbit breeds to fully describe in this manual. Below are descriptions of a few common breeds. The breeds described below are divided into three categories: commercial, fancy and wool. Many breeds of rabbit are multi-purpose and could fit into more than one of those categories (for example the Jersey Wooly could be considered both a wool rabbit and a fancy rabbit). When selecting a 4-H project animal consider which unit you plan to enroll in and what animals in that unit will be evaluated on.

### Unit I – Commercial Type Breeding Stock

- Rabbits should have excellent meat producing qualities, emphasis should be placed on body and muscling

### Unit II – Fancy Type Breeding Stock

- Rabbits should be good representatives of their breed (or breeds if a crossbred), emphasis should be placed on breed features

### Unit III – Wool Type Breeding Stock

- Rabbits should have a wool coat, emphasis should be placed on coat quality

### Unit IV – Doe with Litter

- Breed is irrelevant

### Unit V – Market Rabbit

- Rabbits should have excellent meat producing qualities

### Unit VI – Pen of Three

- Rabbits should have excellent meat producing qualities

### Unit VII – Replacement Breeding Project

- Breed is irrelevant

### Unit VIII - Marketable Rabbit Raising

- Breed is irrelevant

### Unit X – Advanced Skill

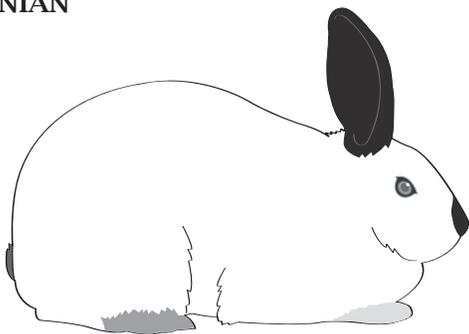
- Breed is irrelevant

Rabbits in all units will also be evaluated on their general type, health and condition.



## Commercial Breeds

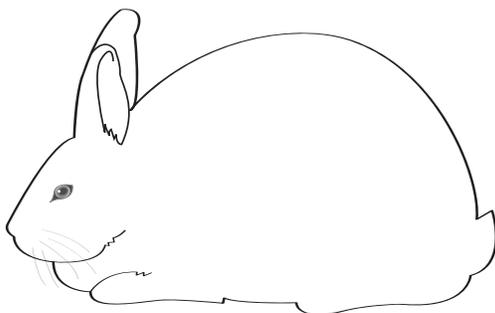
### CALIFORNIAN



Adult Size: Bucks 8 - 10 lbs (3.6 - 4.5 kg),  
Does 8.5 - 10.5 lbs (3.9 - 4.8 kg)

DESCRIPTION: The Californian was first bred in the 1920's, with the intent of creating a better commercial meat rabbit. It resulted from crosses between the Himalayan, the Standard Chinchilla, and the White New Zealand. The Californian is white with pink eyes and dark points on the ears, feet and tail. The colour of the points can be black, chocolate, blue or lilac.

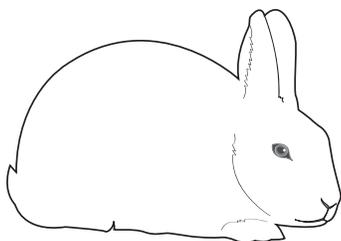
### NEW ZEALAND



Adult Size: Bucks 9 - 11 lbs (4.1 - 5.0 kg), Does  
10 - 12 lbs (3.6 - 5.4 kg)

DESCRIPTION: The New Zealand is a very popular commercial rabbit available in three colors: white, red and black. New Zealands should have deep, wide bodies and smooth flesh covering. This multi-purpose breed can be raised for meat, pelts, show, and laboratory purposes.

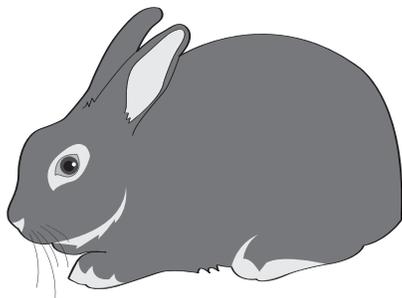
### FLORIDA WHITE



Adult Size: Bucks and Does, 4 - 6 lbs (1.8 - 2.7 kg)

DESCRIPTION: The Florida White is believed to have resulted from crosses between Dutch, Polish, and New Zealand White rabbits. Although it is smaller than many of the other commercial breeds, the Florida White is ideal for the small fryer market. Florida Whites are to be pure white with pink eyes.

### SATIN

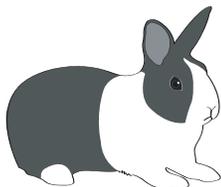


Adult Size: Bucks 8.5-10.5 lbs (3.9 - 4.8 kg),  
Does 9 to 11 lbs (4.1 - 5.0 kg)

DESCRIPTION: The Satin resulted from a genetic mutation found first in a litter of Havanas. Satin fur appears more brilliant in color compared to normal furred rabbits because the hair shaft has a smaller diameter and the hair is also more transparent. They are a commercial type rabbit, with one of the best meat to bone ratios.

## Fancy Breeds

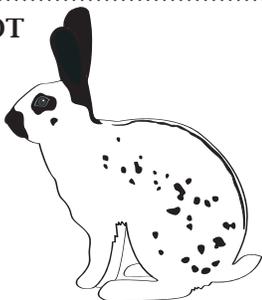
### DUTCH



Adult Size: Bucks and Does, 3.5 - 5.5 lbs (1.6 - 2.5 kg)

DESCRIPTION: The Dutch is a very popular breed easily distinguished by its markings. The markings consist of a white blaze, a white stripe around the front torso (including front legs), white on the ends of the hind feet. The rest of the body is to be black, blue, chocolate, brown-gray, steel, or tortoise. Because the markings are a pure genetic trait, Dutch patterns can also appear in other breeds of rabbit.

### ENGLISH SPOT



Adult Size: Bucks and Does, 5 - 8 lbs (2.3 - 3.6 kg)

DESCRIPTION: This breed is mostly white, with coloring on the nose, ears, around the eyes, and chains of colored spots along its sides including a stripe down its spine. When breeding English Spots, only about 50% of the young will exhibit the characteristic breed markings; the other 50% will be a combination of solid colored rabbits called "selves" and lightly marked rabbits called "charlies". The English Spot has a full arch body type so it should carry its body well up off the ground.

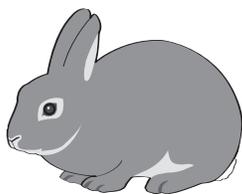
### BELGIAN HARE



Adult Size: Bucks and Does, 6 - 9.5 lbs (2.7 - 4.3 kg)

DESCRIPTION: Though it is a breed of domestic rabbit and not a true hare, the Belgian's lean, arched body, large ears, and energetic temperament led to its misleading breed name. The fur color is to be rich red, of a tan or chestnut shade. Rich black lacing on the ears is also desirable.

### REX



DESCRIPTION: The Rex and the Mini Rex are differentiated from "normal" furred breeds by their unique fur coat. Rex fur is very dense, its guard hairs are nearly the same length as the undercoat giving a plush, velvet like feeling. Rex fur is very short and should have a springy resistance to the touch.

Rex Adult Size: Bucks 7.5 - 9.5 lbs (3.4 - 4.3 kg),  
Does 8 - 10.5 lbs (3.6 - 4.8 kg)

Mini Rex Adult Size: Bucks 3 - 4.5 lbs (1.4 - 2.0 kg),  
Does 3.5 - 4.5 lbs (1.6 - 2.0 kg)

### NETHERLAND DWARF



Adult Size: Bucks and Does, not over 2.5 lbs (1.1 kg)

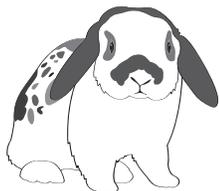
DESCRIPTION: The Netherland Dwarf is one of the smallest breeds. It is a short compact animal with a round head and a short neck. The ears are quite short, ideally only 2" (5cm) in length. It is bred in a wide range of colours and patterns.



## Fancy Breeds: Lops

There are 5 distinct lop breeds: French Lop, English Lop, Mini Lop, Holland Lop and American Fuzzy Lop. All lops are characterized by their lopped ear carriage.

### HOLLAND LOP



Adult Size: Bucks and Does, not over 4 lbs (1.8 kg)

DESCRIPTION: The smallest of the lops, the Holland is to have a compact muscular body and a blocky head with a full crown. The Holland Lop was developed as a result of crosses between French Lops, English Lops and Dwarfs.

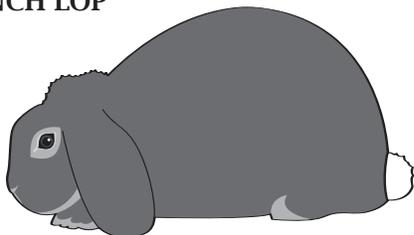
### MINI LOP



Adult Size: Bucks and Does, 4.5 - 6.5 lbs (2.0 - 2.9 kg)

DESCRIPTION: Although it is larger than the Holland Lop, the Mini Lop is considerably smaller than the French and English Lops. The Mini Lop should have a thickset body that is slightly wider through the hindquarters.

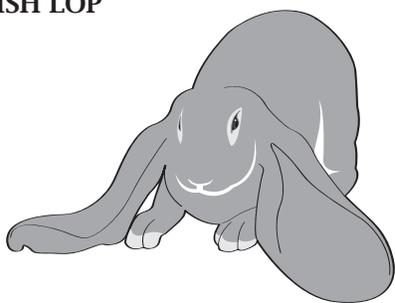
### FRENCH LOP



Adult Size: Bucks 10 lbs (4.5 kg) and over,  
Does 11 lbs (5.0 kg) and over

DESCRIPTION: The largest of the lops, the French Lop is believed to have resulted from crosses between English Lop and Flemish Giant rabbits. The animal's body is to be broad, deep and heavily muscled.

### ENGLISH LOP



Adult Size: Bucks 9 lbs (4.1 kg) and over,  
Does 10 lbs (4.5 kg) and over

DESCRIPTION: The English Lop is believed to be one of the oldest known breeds. This rabbit is easily recognizable by its extraordinary ears which are to be a minimum of 21 inches (53cm) in length from tip to tip. The English Lop is less massive and thickset than the rest of the lops. It should have a smooth mandolin shaped body.

### AMERICAN FUZZY LOP

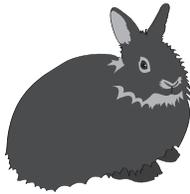


Adult Size: Bucks and Does, Not over 4 lbs (1.8 kg)

DESCRIPTION: American Fuzzy Lops were developed by crossing Holland Lops and Angoras. The body should be short and deep. The head is to be wide, set close to the shoulders and have lopped ears. Slightly coarse wool of at least 2" (5cm) should cover the body. The ears and feet are to be covered in normal fur.

## Wool Breeds

### JERSEY WOOLY



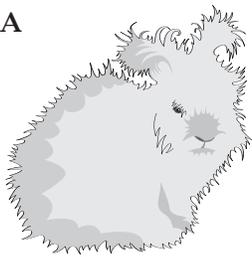
Adult Size: Bucks and Does, not over 3.5 lbs (1.6 kg)

DESCRIPTION: The Jersey Wooly has a short compact body covered in dense wool. Ideal wool length is 2-3" (5-7.6 cm). The head is to be bold and round with side trimmings and a wool cap (short dense wool just in front of the ears). A special characteristic of this breed is extreme gentleness.

### ANGORAS

The Angora is one of the oldest types of domestic rabbit, originating in Ankara, Turkey. They are bred largely for their long wool, which may be removed by shearing or plucking (gently pulling loose wool).

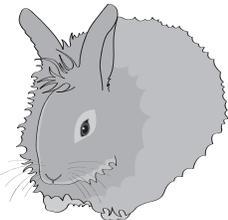
#### ENGLISH ANGORA



Adult Size: Bucks 5 - 7 lbs (2.3 - 3.2 kg),  
Does 5 - 7.5 lbs (2.3 - 3.4 kg)

DESCRIPTION: The English Angora has a compact body and can be easily differentiated by its heavy bangs, side trimmings and heavily tasseled ears. The legs, feet and tail are all covered with wool to the very tips. The wool is very silky in nature.

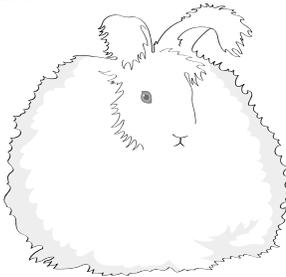
#### FRENCH ANGORA



Adult Size: Bucks and Does, 7.5 - 10.5 lbs (3.4 - 4.8 kg)

DESCRIPTION: The French Angora has a longer, narrower body than the English Angora. The head and feet (past the first joint) are not covered with wool. The wool is coarse and ideally 2.5 - 3.5" (6.4-8.9 cm) in length.

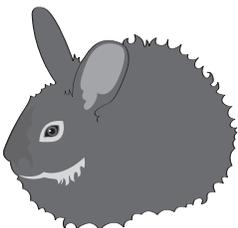
#### GIANT ANGORA



Adult Size: Bucks 8.5 lbs (3.9 kg) and over,  
Does 9 lbs (4.1 kg) and over

DESCRIPTION: The Giant Angora was developed with a goal of maximum wool production. It is a very versatile animal as it has a commercial type body and outstanding wool density. The Giant Angora is to have head trimmings including forehead tufts, cheek tufts, and ear tufts. The wool is to extend to the tips of the feet. Only one variety is available: the ruby eyed white.

#### SATIN ANGORA

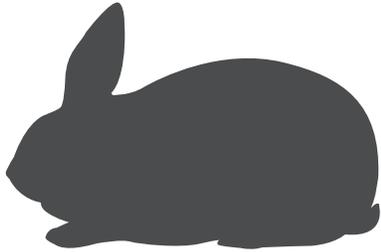


Adult Size: Bucks and Does, 6.5 - 9.5 lbs (2.9 - 4.3 kg)

DESCRIPTION: The Satin Angora resulted from a cross between a Satin and a French Angora. The result was a wool producing animal with a satinized coat. The Satin Angora does not have extensive head furnishings, nor does it have wool on the feet. Its wool is finer than normal angora wool and is soft, silky and very shiny.

## Body Type

Another way to classify rabbits is by body type. There are five body types, which can be determined by the shape of the rabbit when viewed from the side.



### COMMERCIAL

Based on the the ideal type for meat-producing breeds, commercial rabbits are usually larger, with body depth equaling width, showing a smooth round curve through the back and hindquarters.

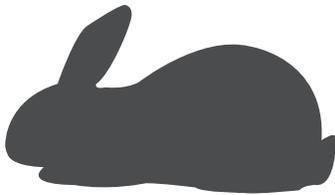
**Breed examples:** Californian, New Zealand, Palomino, French Lop, Silver Marten, Rex, French Angora



### FULL ARCH

Rabbits in this type pose naturally up on their toes, showing a smooth arch from the nape of the neck, through the shoulders, loin and hips, down to the tail. These rabbits show more depth than width.

**Breed examples:** English Spot, Belgian Hare, Britannia Petite, Checkered Giant, Rhinelander, Tan



### SEMI-ARCH

This type sits with legs flat on the table and the arch begins at the back of the shoulders, similar to the shape of a mandolin (which is also another name for the body type).

**Breed examples:** American, Beveren, English Lop, Flemish Giant, Giant Chinchilla



### COMPACT

Most compact rabbits are fairly small, light, and short in length, not intended for commercial rabbit raising. The majority of the fancy breeds belong in this category.

**Breed examples:** Netherland Dwarf, Polish, Mini Rex, Holland Lop, Jersey Wooly, American Fuzzy Lop, Mini Lop, Dutch, English Angora



### CYLINDRICAL

This type is easy to distinguish due to their long, thin, tube-shaped body, with fine bones and a slender head, posed in a stretched out position.

**Breed example:** Himilayan

## Tips for Purchasing a 4-H Project Animal

- Aim to purchase a show-quality animal. These animals can be purchased from reputable breeders and will come with a pedigree. Purchasing directly from a breeder will ensure you have correct information about your animal; oftentimes pet stores falsely identify the breed of their stock and/or seller lower quality animals.
- See the 4-H Livestock Judging Guide\* (Publication #427) for information on general rabbit conformation.
- \* In Ontario, please reference 4-H Ontario's Judging Toolkit.
- Make sure the rabbit's coat is in good condition.
- If you know the breed you wish to purchase, consider the specific breed standards.
- Handle the rabbit to ensure it is healthy.
- Consider the animal's personality and temperament. You will want to choose one that is easy to handle and care for.
- If you are new to rabbit judging consider bringing along another member from your club for a second opinion.

## Commonly asked questions about purchasing 4-H project rabbits:

### 1. Does my rabbit need to be a purebred?

No it does not. All rabbits are welcome in 4-H regardless of whether they are purebred or crossbred. Purebred rabbits may be easier for you to evaluate, however, since they have specific breed standards.

### 2. How can I find out what the specific breed standards are for my breed?

In North America, specific breed standards are established by the American Rabbit Breeders Association (ARBA). The standards are recorded in a publication called the "Standard of Perfection". Many breeds also have specialty clubs with websites that describe the breed standards. Visit the ARBA or speciality club websites for more information.

### 3. How can I find a reputable breeder?

Reputable breeders will usually be ARBA members or may be involved with local rabbit fancier associations. A reputable breeder should have accurate and up to date records and should be able to show you pedigrees for their stock. Check the ARBA website or with your local rabbit fancier association for a list of breeders in your area. Attending a sanctioned ARBA is also an excellent way to become familiar with breeders in your area. In BC there are several sanctioned ARBA shows throughout the year. Check the ARBA website for dates and locations.

### 4. What is a dwarf rabbit?

Many pet stores falsely advertise their rabbits as dwarfs. The term "dwarf" does not actually refer to a specific breed but rather to a gene found in certain breeds such as Holland Lops, Jersey Woolly's, Britannia Petites, Dwarf Hotots, Netherland Dwarfs, Polish, and Mini Rex. Even purebred rabbits of these breeds are not guaranteed to be true dwarfs; the dwarfism depends on the type of dwarfing genes they inherited from both parents.



## Feeding and Nutrition

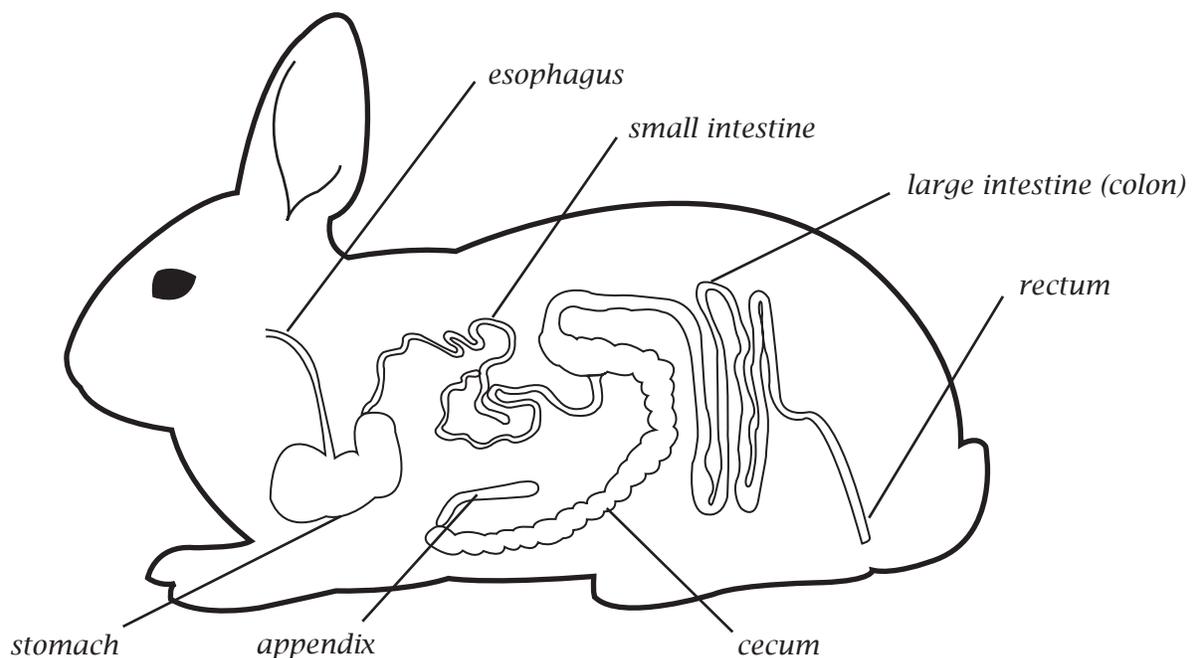
Feed, whether grown at home or purchased, accounts for the most significant cost in raising any animal. It is necessary for the 4-H club members to learn the basic fundamentals of nutrition and then to study the appetite and feeding habits of each animal in order to provide the proper type and amount of feed at feeding time. The caged rabbit cannot forage and select its diet like the wild rabbit does. It is up to you to supply your rabbit with a proper diet.

Animals require food for three main purposes:

1. To give heat and energy to the body.
2. To provide essentials for building various body tissues.
3. To supply materials for bone building.

### **Digestion**

Rabbits have a unique digestive system that allows them to absorb important nutrients from materials that are indigestible to many other animals. After food leaves a rabbit's stomach it enters the small intestine, where many of the nutrients are absorbed. Fibrous waste material leaves the small intestine and is sorted. The hard waste enters the colon and is excreted in pellet form. The remaining undigested food enters the cecum and is broken down by the bacteria that live there. The bacteria of the cecum make it possible for the rabbit to get nutrients from fibrous material that it otherwise would not be able to break down. The material from the cecum is passed by the rabbit as small soft pellets called cecotropes. The rabbits re-ingest these soft nutrient-rich pellets as soon as they emerge from the body. This practice is known as coprophagy.



## Food Nutrients

The term “nutrient” is applied to any chemical compound (natural or man-made) or a group of compounds of the same general chemical compositions that aids in the support of animal life. The primary food nutrients required by all animals are classified as Carbohydrates, Fats and Proteins. Secondary food nutrient classes consist of Minerals and Vitamins. Other nutrients of much importance are Water and Air, but these are obtained primarily from sources other than feed. Definitions of these nutrients, their uses in the body and common feeds that contain them, are given in the accompanying notes.

### CARBOHYDRATES

These are complex substances that contain only carbon, hydrogen and oxygen - the latter two always in the same proportion as water. Their use is to produce heat, energy and fat in the body of the animal. Good sources of carbohydrates are oats, barley, wheat, corn and molasses. Roughage also contains this nutrient. Common carbohydrates are starch and sugar.

### FATS

These are also complex substances that contain only carbon, hydrogen and water, but the proportions of carbon and hydrogen are much greater in fats than in carbohydrates. Any amount in excess of requirements is stored as fat in the tissues. Fat is found in small quantities in common grains such as oats, barley and wheat, while flax seed and soybean seed are high in fat. Roughage is very low in fat content.

### PROTEINS

The proteins are also very complex compounds, containing carbon, hydrogen, and oxygen and always containing the element nitrogen. Most proteins also contain sulphur and some contain phosphorus. Proteins are necessary for growth, development of glands, muscles, hide and hair. They are especially needed by the young growing animal for production of body tissues. The younger animals are growing at a greater rate than the older animals, thus the protein percentage in their diet must be greater. Protein is supplied in the legume hays (alfalfa and clover), linseed meal, milk, wheat bran, oats, and pasture grasses. The legume hays and all animal by-products are rich in protein.

### MINERALS

The four minerals that are the greatest importance to the livestock feeder are sodium, chlorine (combined in common salt), calcium, and phosphorus. Other minerals utilized and likely to be lacking in certain localities are iron, iodine, cobalt, sulphur, and copper.

Minerals are used by the body for many things. They aid the proper functioning of body processes including: manufacturing of blood, digestion, muscle action and bone building. Minerals are stored in the skeleton and the tissues.

Plant materials and rabbit pellets both contain minerals. If you feed your rabbit a balanced diet including both pellets and a variety of fresh foods, there likely will be no need for mineral supplements. If you notice a deficiency in your rabbit, try to identify the mineral that is lacking and add it to the diet using fresh foods or a mineral block. Be alert to the fact that most mineral supplements do not contain all the essential minerals. Make sure you know what the supplement contains before you feed it to your rabbit.



## VITAMINS

Vitamins are known as accessory food substances. They are identified by letters. Vitamins A, B and D are commonly required by the rabbit. Vitamins find their use in the body as regulators of growth processes, assisting in digestion and helping disease prevention.

- Vitamin “A” promotes health and growth. It is found in green grass, carrots, milk, well-cured le-gume hay, yellow corn and cod liver oil.
- The “B” Vitamins play an important role in cell metabolism. In rabbits the B vitamins are provided mostly from the bacteria that live within the caecum.
- Vitamin “D” is known as the “Sunshine Vitamin”. Lack of vitamin “D” in your animals’ diet causes the disease known as Rickets. It is very important in the rations of the growing animals and more particu-larly during the winter months. Milk, grasses, and well-cured hays are good sources of vitamin “D”.

## WATER

All vital processes of the body demand water. It is used in the digestive processes and in the removal of wastes from the body. Keep plenty of fresh water in front of your rabbits at all times. This is the cheapest and most essential feed required by all animals.

## Classes of Feed

Feeds can be classified into three main groups:

1. Concentrate Feeds
2. Dry Roughage
3. Succulent Feeds

### 1. CONCENTRATE FEEDS

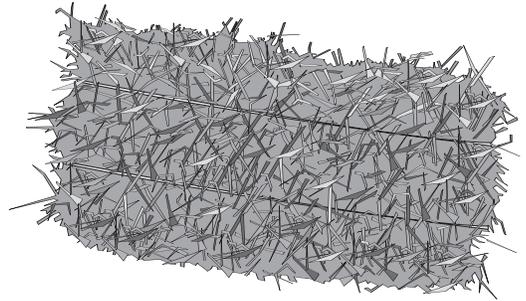
Concentrate feeds include farm grains, milled feeds (rabbit pellets), and manufactured supplements. They are feeds low in fibre and high in digestible nutrients. Some of the common concentrates are oats, barley, wheat, bran, corn, dried beet pulp, linseed meal, fish meal, and soybean meal.

Many brands of rabbit pellets are available on the market. There are two types of pelleted diets: an all grain pellet to be fed with hay, and the complete pellet which already contains hay. A complete pellet rabbit ration from a reputable feed company usually supplies the right amounts of protein, energy, fibre, minerals and vitamins to meet your rabbit’s needs.



## 2. DRY ROUGHAGE FEEDS

Dry roughage feeds include hay and straw. These feeds are high in fibre, but low in digestible nutrients. If fed unaccompanied, large quantities of these feeds are needed to sustain animal life. Dry roughage used in rabbit feeding includes alfalfa hay and clover hays (high in protein) as well as mixed hay and timothy hay (lower in protein). These hays differ considerably in their content of protein, carbohydrates, minerals and fibre. For your rabbits, choose hay that is fine stemmed, leafy, green, well-cured and free from mildew or mold. Choose the type of hay you will feed based on what else you are feeding. If you are feeding a high protein pellet you may choose to feed a lower protein hay to keep the diet in balance.



## 3. SUCCULENT FEEDS

Succulent feeds are those fed in the green stage such as green grass and vegetables. Fresh green feeds and root crops should only be used as supplements (treats) to the concentrate part of the diet, as they are primarily composed of water. Succulent feeds should be added to the diet slowly because they can contribute to diarrhoea. Some succulent feeds such as cabbage and beans may also cause gas. Succulent feeds are good sources of vitamins and minerals but it is important to carefully monitor the type and amount you feed to your rabbit.

## Feeding Program Design

When designing a feeding program for your rabbit ensure that:

- All feeds are high in quality for maximum digestibility.
- A combination of feeds is provided to supply adequate protein, carbohydrates, fats, minerals and vitamins.
- Feeds selected are economical to permit profit.
- There is variety.
- You consider the individual needs of your animals.
- The rabbit is receiving adequate nutrients to maintain their condition and health.

Some rabbits may have special nutritional requirements that you will need to consider when designing a feeding program. For example, wool bearing breeds including the angoras have higher protein requirements than most other breeds. You may need to include extra protein in their diet through the use of a higher protein pellet or the addition of high protein hay such as alfalfa.

## Pellet Purchasing Tips

- Buy a product that is made especially for rabbits. Rodent food may not have all the nutrients that will be required by your rabbit.
- If you only have a couple of rabbits try to purchase feed in small quantities so that it will not go stale.
- Rabbit pellets are usually classified by protein content. Purchase pellets that will fulfill the protein requirements of your rabbit.
  - o Maintenance 12%
  - o Growth (babies and market animals) 16%
  - o Pregnancy 15%
  - o Lactation 17%
- Avoid feeds with unnecessary additives such as colour, dried fruit and nuts.

## How Much to Feed?

Two methods of feeding are in general practice:

### 1. Full or Self-Feeding

To self-feed place several days' feed in the hopper at once. Animals will eat whenever they are hungry. Self-feeding is recommended for pregnant and lactating (nursing) does, young litters and market animals. If feed is available at all times, they will increase their food consumption to keep up with their high energy requirements. Hoppers should be checked regularly to ensure feed supply is sufficient.

### 2. Managed Feeding (limited feeding)

Place a measured amount of feed in the feed troughs each day. This method is recommended for feeding dry does, adult bucks, and breeding stock. The rabbit's daily intake is restricted. There is less chance of animals becoming overly fat. Also, as you are feeding your rabbits at least once a day you have the opportunity to inspect them.

Like humans, each rabbit will have unique nutritional requirements. Depending on the size of the breed, rabbits generally require from  $\frac{1}{4}$  to  $\frac{1}{2}$  cup pellets per 6 pounds (2.72 kg) of body weight, as well as some hay and vegetables. If hay and vegetables are not provided, more pellets will be required. It is important to handle your rabbit regularly to determine if it is over or underweight. Adjust the amount of feed provided as necessary to maintain correct conditioning.

## Changing Feeds

From time to time you may have to switch from one brand of feed to another because the present feed has become unsatisfactory for whatever reasons (i.e. poor quality, high price, etc.). Change feed slowly by mixing the old with the new over a period of at least a week. The first day, start out with a mix of old feed 90%, new feed 10%, and each day after that reduce the old feed percentage and increase the new feed percentage accordingly until it is 100% new feed. Because of a rabbit's unique digestive system and its reliance on the bacteria that live in the cecum, an instant change in feed will likely result in digestive upset.



# Facilities

## Housing

Unlike most other types of livestock, rabbits are very flexible when it comes to housing. Elaborate, expensive housing and equipment are not necessary. Rabbits can be housed in anything from simple wire cages, to outside hutches, to large scale rabbitry buildings.

All types of rabbit housing should:

1. Provide the correct amount of space for the type of rabbits they will house.
2. Be as easy to clean and maintain as possible.
3. Provide a safe place for rabbits to live, breed and raise young.
4. Be both economical and of good quality.
5. Be sturdy and durable.
6. Have adequate ventilation.

## Recommended Cage Sizes

The cage or hutch is the rabbit's home. Unlike you and I, rabbits cannot leave their home whenever they want for exercise so it is important that we provide them with enough space to be comfortable. Mature rabbits are housed individually. You will find below a list of common recommended cage sizes for the different sizes of rabbits.

<b>INDIVIDUAL RABBIT</b>			
<b>Size of Rabbit</b>		<b>Space Requirement</b>	
<b>lbs</b>	<b>kg</b>	<b>Sq. inches</b>	<b>Sq. centimeters</b>
3-5	1.4-2.3	180	1161
6-8	2.7-3.6	360	2323
9-11	4.1-5.0	540	3484
12 or more	5.4 or more	720 (24" x 30")	4645 (61 cm x 76 cm)

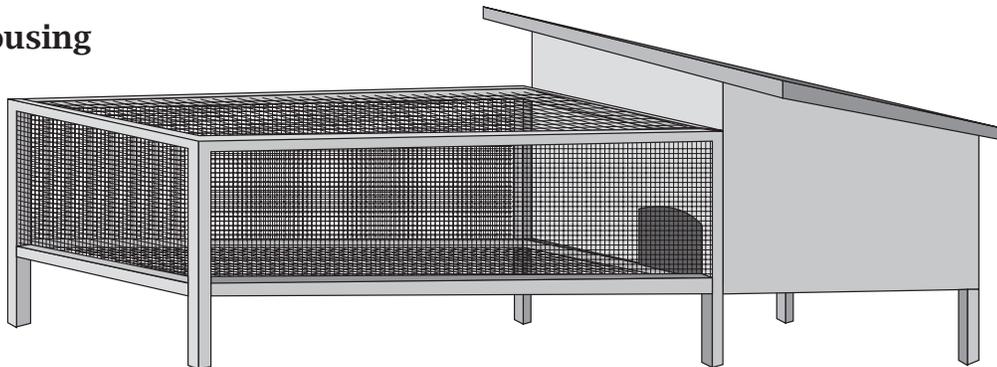
<b>NURSING DOES</b>			
<b>Size of Rabbit</b>		<b>Space Requirement</b>	
<b>lbs</b>	<b>kg</b>	<b>Sq. inches</b>	<b>Sq. centimeters</b>
3-5	1.4-2.3	576	3716
6-8	2.7-3.6	720	4645
9-11	4.1-5.0	864	5574
12 or more	5.4 or more	1,080 (30" x 36")	6968 (76 cm x 91 cm)



The height of the cage should be 38-90cm (15-35 inches) depending on the height of the rabbit. If the rabbits' ears touch the top of the cage, either while it is sitting upright or hopping back and forth, then you must raise the top of the cage. Cages should not be so deep that you cannot reach the rabbit if it goes to the back.

Even with a proper cage, all rabbits benefit from exercise (especially overweight ones). Once or twice a week, allow your rabbit to exercise in a controlled space (barn floor, veranda, kitchen, etc.) Watch your rabbit at all times! This routine is more necessary for non-breeding bucks and does.

## Types of Housing

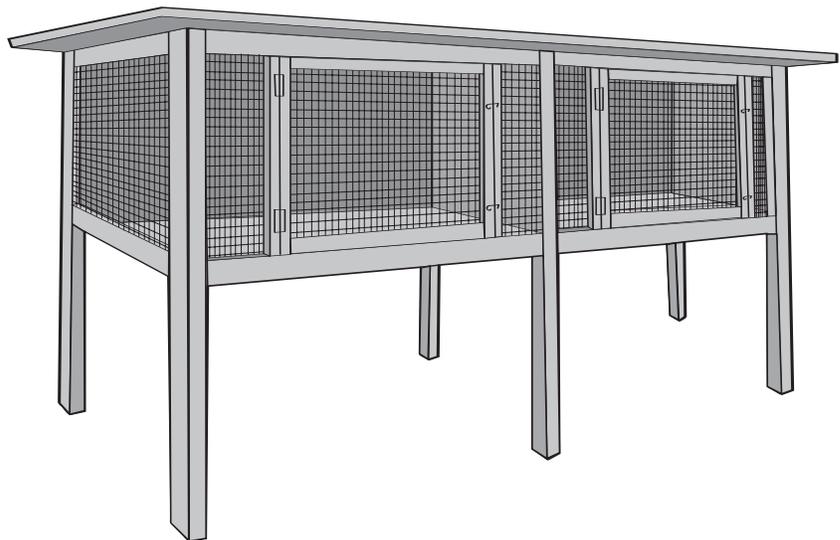


### SMALL OUTDOOR HUTCH - TOP ACCESS

This is a small wooden hutch that is built about 60 centimeters off the ground. The hutch is constructed of wood and has a wooden roof which is hinged and can be tilted back to give top access to the hutch for cleaning. The hutch has a welded wire mesh floor and front.

### OUTDOOR HUTCHES - FRONT ACCESS

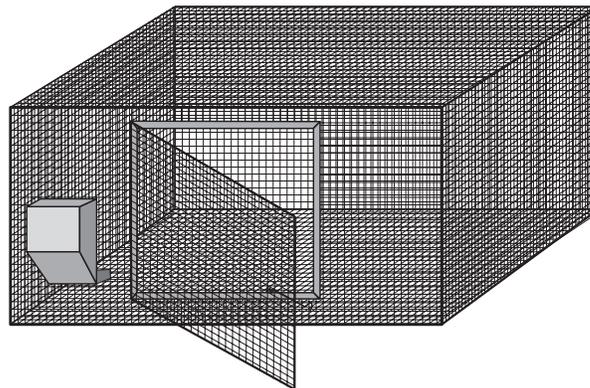
This group of outside hutches has a single roof which covers all cages and a large overhang to shelter the cage fronts from rain or snow. The cages could be 60-120 centimetres above the ground. The floors, sidewalls, front and door can all be made of welded wire. The back wall could be wood, metal or plastic to provide a windbreak.



The roof could be wood and asphalt shingles, sheet tin or corrugated fibre glass and sloped so that rain would run towards the back. An alternative to this design would be to build the hutch against the leeward side (side sheltered from the wind) of a building. The roof of the building would extend well out over the top of the hutch and should also have eave troughs so that the run off would not drip on top of the hutch.

## INDOOR WIRE CAGE

Wire cages can be put together with 'J' clips or purchased preassembled. It can be set on sawhorses with a sheet of wide plywood laid on top for the roof. You can also build a roof on 4 posts and hang the cage(s) from the rafters or ceiling joists, or legs can be attached to the outside of the cage using fencing staples. The all wire cage is easy to keep clean. Using this type of cage will mean that you will have to take a little more care as to where you place it because in the other examples the cages have protective (solid) walls.



These examples were just a few of the many different designs that are available. Cages are one of the most important parts of any rabbitry and whether they are outside or inside they should be user friendly. Do not build a cage that is hard to clean or is hard to get the rabbits in and out of.

Much thought should be given to the construction and arrangement of cages in the rabbitry. Rabbits suffer more from hot weather than cold, so place cages in the shade for the summer and in the winter place them so that they face away from the prevailing winds to protect them from the elements. Never place them uncovered in direct sunlight.

Outside cages need a shady roof and protection from rain, wind, drafts, dampness, and direct sun during the hot summer months. If the weather is very hot cool your rabbit by putting a frozen bottle of water in the cage or putting wet towels on the sides of the cage.

## Materials

Below are a few points to consider when purchasing materials for rabbit cages.

### WIRE

Wire used in cages should be galvanized, welded wire. One side of the wire is usually smoother than the other. Make sure the smooth side faces up on the floor to protect your rabbit's feet from damage.

Never use poultry wire (fencing/ netting) because it is much too weak. Granted it is cheaper but due to its construction and gauge (thickness and strength) dogs, humans, owls, hawks, raccoons, and foxes can easily break through and harm your rabbits.

Location Used	Gauge	Mesh Spacing
Floor	14	12.5 mm x 25 mm
Sides and Top	16	25 mm x 25 mm to 25 mm x 50 mm
Kindling Cages - bottom and first 4 inches on sides	14	12.5 mm x 12.5 mm (prevents babies from getting stuck or falling out)

Wire mesh is a good choice for rabbit cages because:

1. Rabbits cannot damage it by chewing.
2. It is quite easy to clean up and disinfect.
3. Wire cages are fairly light in weight.
4. Cages allow good visibility of the rabbits inside.
5. Welded wire mesh cages are quite easy to build.

Wire floors can be hard on rabbit's feet. If your cage has an all wire floor consider providing something for your rabbit to sit on such as wood, cardboard, carpet, or straw.

## WOOD

Wood is very commonly used in rabbit cages but it is not ideal for several reasons:

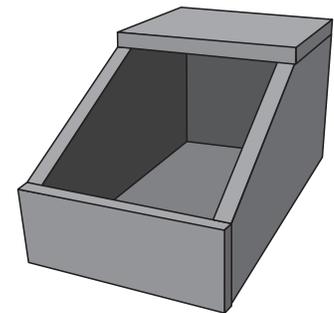
1. Rabbits love to chew on wood and will work hard at chewing through the wooden portion of their cage.
2. Pressure-treated wood is toxic to rabbits and should never be used.
3. Wood absorbs urine and other liquid waste. This will cause rotting of the wood and will result in odours.
4. Wood is difficult to disinfect so it is a great place for bacteria to grow.

If wood has to be used, it should only be used for the top and only on the two sides of the cage, never for the floor. Try to limit the amount of exposed wood in the cage. If there is exposed wood consider covering it with a layer of wire so the rabbit cannot chew it.

## Other Equipment

### NEST BOX

Provide nest boxes for your does before they give birth. A nest box keeps the kits dry, protects them from hot or cold weather, and hides them from predators. The size of the nest box is important. Nest boxes that are too large can cause the death of a kit. When a box is too big the doe may stay longer than needed to nurse her young. She may soil the bedding with her droppings; which will make the bedding damp and leave a strong ammonia odour that may cause respiratory illness in rabbits.



No one type of nest box is best suited for all conditions, but all should provide privacy for the doe of kindling as well as comfort and protection for the young. It should be simple to clean and maintain, well drained and ventilated and accessible to the young when they are large enough to leave and return to the nest. Make the box so that you can remove the top and bottom during cleaning. Make two or three holes 1 cm - 2 cm in diameter in the upper corner of the box farthest away from the opening, for ventilation and to prevent condensation.

During cold weather, young rabbits will need more protection than a standard nest box will furnish. You can make a simple winter nest by lining the inside of the standard box with an insulating board. Be sure to line the top and bottom as well as the sides. Fill the box with clean straw or wood shavings, so the doe can burrow a cavity for a nest.

## FEED DISHES

Feeders can be as simple as heavy glass or metal containers which cannot be turned over. You may purchase specially designed crocks for rabbit feedings. These crocks, about 15 cm across, are hard to tip and have lips that prevent rabbits from scratching out the food. However these can easily become dirty and full of droppings as the rabbit moves around its cage.

Most rabbitries make use of the metal feeders which are specially made for rabbits. They mount on the outside of the cage with only the actual trough part extending into the cage. They are constructed so that they can be easily filled from the outside of the cage. Mount the feeder on the side of the cage: 10 cm from the cage bottom for giant breeds, 7.5 cm to 10 cm from the bottom for medium breeds, and 5 cm from the bottom for small breeds. To mount the feeder, a hole must be cut in the cage for pushing the trough part of the feeder through. Give careful consideration to where to locate the feeder before cutting a hole in your cage to mount it.

## WATER SYSTEMS

Rabbits, like all other livestock, must always have an ample supply of clean, fresh water. There are several different types of rabbit water systems. Select the type that best suits your needs.

Type	Advantages	Disadvantages
<b>Plastic bowl</b>	<ul style="list-style-type: none"> <li>· Inexpensive</li> <li>· Durable</li> </ul>	<ul style="list-style-type: none"> <li>· Rabbit will chew it</li> <li>· Rabbit can easily dump it</li> <li>· Water may easily become contaminated</li> </ul>
<b>Ceramic crock</b>	<ul style="list-style-type: none"> <li>· Durable</li> <li>· Rabbit will not chew it</li> </ul>	<ul style="list-style-type: none"> <li>· May crack</li> <li>· Rabbit might dump it</li> <li>· Water may easily become contaminated</li> </ul>
<b>Plastic bottle with ball bearing nozzle</b> (mounts on the outside of the cage)	<ul style="list-style-type: none"> <li>· Water cannot be easily spilled or contaminated</li> <li>· Does not take up floor space in the cage</li> </ul>	<ul style="list-style-type: none"> <li>· Lower quality bottles may crack when they freeze or fall off the cage</li> </ul>
<b>Automatic Watering System</b> (water is supplied through rigid pipes or flexible hose with nipples on the end, must be under pressure or gravity fed)	<ul style="list-style-type: none"> <li>· Water cannot be easily spilled or contaminated</li> <li>· Does not take up floor space in the cage</li> </ul>	<ul style="list-style-type: none"> <li>· Expensive</li> <li>· Cannot be used in below freezing temperatures</li> </ul>
<b>Semi Automatic Watering</b> (water is supplied through flexible hose with nipples, water is gravity fed from a reservoir mounted above the cage)	<ul style="list-style-type: none"> <li>· Water cannot be easily spilled or contaminated</li> <li>· Does not take up floor space in the cage</li> </ul>	<ul style="list-style-type: none"> <li>· Cannot be used in below freezing temperatures</li> </ul>

## Special Cages

In addition to the main hutch or cage, you may need a show cage and a carrying cage.

The show cage will be used to exhibit your animal at shows. The cage should be all wire (use the same wire mesh as in the hutches) and should have a plastic or galvanized metal pan on the bottom to collect droppings. The floor should be raised 5cm from the bottom of side wires so the tray can slide in underneath. Ideally the tray will be attached to the cage using springs or clips so that it does not fall off when you move the cage. Access to the show cage can be either through a door or a hinged removable top.

The carrying cage will be used to transport your rabbit to and from shows and possibly also to the veterinarian. Carrying cages should also be made of wire mesh and have a tray attached to collect droppings. The carrying cage will be considerably smaller than your average cage because it is meant to contain your rabbit only for a short period of time. Access to carrying cages is usually through a hinged removable top.

## Sanitation

Sanitation is very important in the rabbitry. Rabbits are very susceptible to health problems caused by ammonia vapors and excess humidity from a build-up of manure and urine. For these reasons it is important to keep your rabbitry clean.

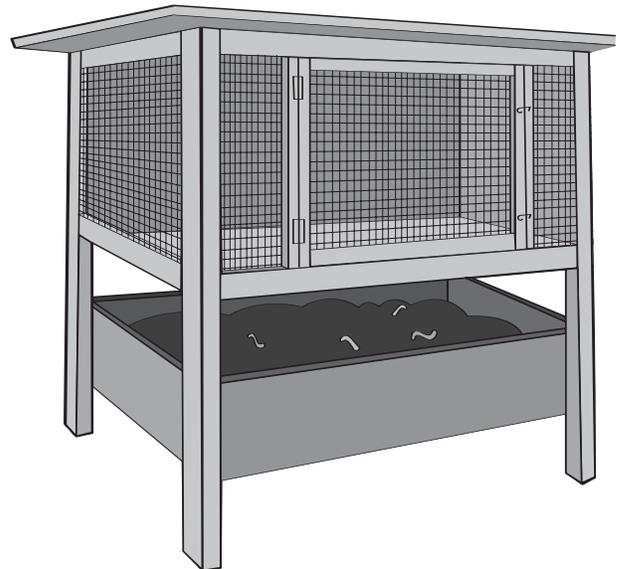
### CLEANING CHECKLIST

- Clean the feeding and watering equipment daily.
- Clean the hutches and cages at least once a week.
  - o Cages should be brushed with a wire brush and disinfectant to remove urine and droppings.
  - o Use a vacuum or a stiff bristle brush to remove loose fur on cages and other equipment before it becomes a problem.
  - o A mixture of vinegar and water may be used to remove calcium carbonate deposits (from urine) which build up on cage wire as a white coating.
- If you use bedding (such as straw), soiled bedding should be removed daily and replaced with fresh bedding.
- Sweep out and dispose of all accumulated droppings and urine on the barn floor several times per week. If your hutch or cage is outdoors you may only need to do this every few months.
- Sanitize the equipment with chlorine bleach whenever your rabbit has had health problems or if you obtain second-hand equipment.
- Concrete floors should be scrubbed with a disinfectant as often as possible.
- Clean and check the ventilation system on a regular basis to be sure that air flow is not reduced by dirt and debris build up.

## Uses for Rabbit Manure

Rabbit manure can be used in several ways including:

- **Raising worms;** a worm pit can be constructed directly under the cage (outside or inside). Rabbit manure is the best material to raise worms in. You can purchase composting worms “Red Wigglers” from a worm supplier. Worms will turn the manure into rich growing soil, which you could sell or use in your garden.
- **Composting;** add rabbit manure to your compost pile. It can be used as mulch or it can be composted in layers with other composting materials (leaves, grass, clippings, shredded paper, etc.) Roses love it and it is good to add to clay type soils to help keep the soil loose.
- **Fertilizer,** added directly to the garden straight from the rabbit. Rabbit manure will not burn your plants.



## Ventilation and Temperature

One of the most important features in raising healthy rabbits is proper ventilation. This is necessary to provide fresh air, reduce humidity, dilute or kill airborne disease causing organisms and to help control temperature. If the animals are located in an area with a breeze most of the time, you may be able to rely on natural ventilation.

In enclosed buildings where temperature and humidity are controlled, the desirable combination is 15-24°C and 30-40% humidity.

### HOT WEATHER

Rabbits can withstand cold weather better than hot weather. They may die if exposed to extreme heat. The temperature in the hutch should not be higher than 27.5°C. In hot weather, provide the rabbits with shade and any possible breezes. On extremely hot days, place plastic bottles of frozen water in the cage. The rabbits curl up around the bottle to keep themselves cool. An electric fan can help to circulate the air. Situate the fan so that it does not blow directly on your rabbits.

### WET WEATHER

In cold weather, protect rabbits from wind, rain, sleet, and snow. Rabbits can tolerate low temperatures and excessive cold, but wet and drafty conditions weaken their resistance to disease. Place the hutches where rain will not enter the cages and get the rabbits wet.

# Husbandry and Health

## Husbandry

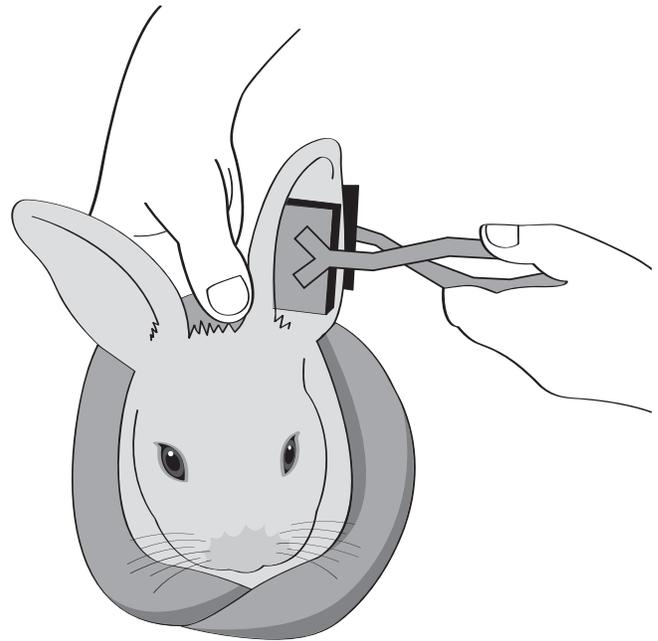
Husbandry is defined as the practice of cultivating the land or raising stock. When raising rabbits, proper husbandry practices are of vital importance to ensure the health and happiness of your animals. Rabbit husbandry includes identification, nail trimming, disease prevention and more.

## Identification

Learning to tattoo a rabbit is an important and necessary management skill. Tattooing gives the rabbit its identity or name. It is the best way to keep accurate records, especially if you are breeding rabbits and completing pedigrees. The best age to tattoo a rabbit is when it is ready to be weaned; 6 to 8 weeks old.

### STEPS

1. Put numbers and/or letters in the tattoo pliers.
2. Tattoo a piece of cardboard or paper first to make sure it says what you want it to.
3. Restrain the rabbit in a tattoo box or by wrapping firmly in a towel with only the ears exposed.
4. Clean the rabbit's ear with a cotton swab soaked in alcohol.
5. Have a plastic baggy with ice to apply to the ear to freeze the area (optional).
6. Carefully tattoo the smooth part of the left ear with the tattoo pliers. Be as gentle as possible.
7. With a stiff bristled brush, press the tattoo ink into the holes. You can also try using a new pencil eraser to press the ink in.
8. Rub a small amount of Vaseline over the tattoo and wipe off the excess with a clean tissue.
9. Keep a record of the rabbit's sex, breed and tattoo number.



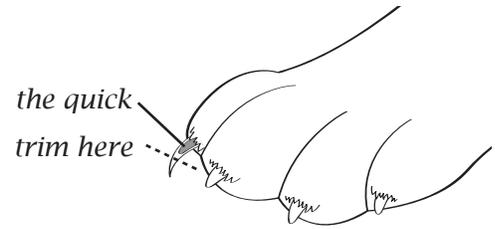
Pay close attention to the tattooed ear for about 10 days, making sure that it does not become infected.

## Trimming Nails

Nail trimming is a necessary part of rabbit care, and will be easier if you do it on a regular basis.

### STEPS

1. Gather your supplies - trimmers, towel, cotton swabs and something to treat the nails if accidentally cut too short.
2. Find a helper if possible and have them hold the rabbit gently but firmly (swaddling the rabbit in a towel will help keep them calm and restrained).
3. Trim off only the tip of the nail (if you cut too far down you will hit the quick which will bleed). Before cutting apply gentle pressure, if the rabbit flinches move the trimmers further toward the tip. Make the cut in a firm, swift motion to avoid crushing the nail.
4. If a nail is accidentally cut too short, wipe away blood with a cotton swab and quickly place a pinch of a product such as blood stop (or cornstarch or flour) on the end of the nail and pack it gently.
5. Repeat for all the nails.
6. If your rabbit is struggling take a break between feet so it does panic and hurt itself.



- TIPS:**
- It is better to trim nails a little bit, regularly, than try to trim off a lot once in a while.
  - Always restrain the rabbit correctly, supporting and restraining the hind end well.
  - Cutting a nail too short is scary but it is common so do not feel bad if it happens and do not panic. Make sure the bleeding stops before leaving the rabbit unattended.

## Disease Prevention

As with all types of livestock, prevention is the best medicine when it comes to your rabbit's health. Poor health and disease can often be attributed to faulty husbandry. To help prevent disease in your rabbitry follow these suggestions:

- Provide your rabbit with a balanced diet and plenty of fresh water (see chapter on Feeding and Nutrition).
- Practice excellent sanitation (see Facilities chapter under Sanitation).
- Handle your rabbits regularly.
- Wash your hands.
- Inspect new rabbits thoroughly for signs of disease before you purchase them.
- Isolate all newly purchased rabbits and those returning from shows for about a month as a precaution.
- Disinfect cages before restocking.
- Avoid overcrowding.
- Keep the rabbitry adequately ventilated.
- Reduce stress by keeping the rabbitry quiet and comfortable.
- Make sure the rabbitry is free of vermin (mice, rats) and cannot be entered by other animals (dogs, raccoons).
- Do not take your rabbit to any club events while it is sick.
- If you have more than one rabbit, feed and handle any sick ones after the others.

Besides keeping a clean and quiet environment for your rabbit, learning to recognize signs of poor health will help you prevent disease outbreak in your rabbitry. Early recognition of health problems will help you treat the rabbit as soon as possible. You will also be able to quickly isolate a sick animal before disease has a chance to spread to the rest of the rabbits. It is important to observe and handle your rabbits regularly so that you can detect potential problems quickly.

	Healthy	Unhealthy
<b>Eyes</b>	Clear and bright	Dull, cloudy, runny
<b>Nose</b>	Clean (no discharge)	Nasal discharge or mucous
<b>Ears</b>	Clean with smooth skin inside	Crusty or scabby
<b>Head</b>	Held straight and upright	Tilted to one side
<b>Coat</b>	Smooth, shiny	Dry, dull, patchy hair
<b>Skin</b>	Soft and supple	Dry, tight, hard
<b>Feet</b>	Well furred, straight toes, unbroken claws	Patchy fur on feet, sores or redness on pads, crooked or broken toes and claws.
<b>Temperature</b>	99.1 - 102.9°F (37.3°C - 39.4°C) (rectal)	Above or below the healthy range
<b>Respiration</b>	35 - 60 breaths per minute	Noticeably slow or fast respiration (except during exercise)
<b>Droppings</b>	Hard and round (except for cecotrophes)	Soft and runny
<b>Appetite</b>	Normal	Does not eat
<b>Thirst</b>	Normal	Does not drink at all or is drinking all the time
<b>Behaviour</b>	Alert	Listless

## Common Rabbit Health Problems

When you identify some signs of poor health in your rabbits, you will need to try to diagnose and treat the problem. Some health problems you may be able to diagnose and resolve on your own, but other health problems may be more complicated and require a veterinarian. If you are not sure what the problem is or if your rabbit is experiencing a lot of discomfort do not hesitate to call the vet.

There are many diseases and conditions that can affect rabbits; a few of the more common ones are described below. You are encouraged to continue with your own research to develop a complete knowledge of rabbit diseases and parasites.



## Parasites

Parasites are a common problem in rabbits. Both internally and externally, rabbits can be plagued with a host of parasites which may go unnoticed for extended periods of time. Often, the only indication that there may be a parasite problem is that the animal is not gaining weight as it should, has runny stools, or has a dull fur coat. The best course of action against parasites is always prevention through proper sanitation and sound management practices.

### COMMON RABBIT PARASITES

Condition	Cause	Symptoms	Treatment
<b>Ear Mites</b>	Infestation of outer ear with ear mites.	Brownish scabs in the ear canal. Scratching at the ears, shaking of the head.	Treat with an insecticide, orally or topically. Repeat treatments may be necessary.
<b>Fur Mites</b>	Fur mites, most likely to be found on the back and neck. Fur mites do not burrow into the skin.	Reddened scaly skin, intense itching and scratching with some loss of hair.	Treat with an insecticide such as ivermectin. Some cat flea products may work. Thorough cleaning of the environment is essential.
<b>Mange Mite</b>	Mange mites, burrow into the skin.	Wounds, first on the lips and nose. Heavy scratching, loss of fur, scabs.	Treat with an insecticide, surface treatment of wounds may also be necessary. Consider veterinary consultation. Thorough cleaning of the environment is essential.
<b>Intestinal Worms</b>	Various types of worms (pin worm, tape worm...etc).	Difficult to detect. Poor condition, slow growth rate. Occasionally possible to see worms in the droppings.	Use of a wormer, consult vet as not all products are suitable for rabbits and not all products eliminate all types of worms.
<b>Coccidiosis</b>	Microscopic protozoan (single cell) parasites attack the liver and/or the intestinal lining.	Diarrhea, weight loss, pot-bellied appearance, poor condition. Can lead to death.	Use of a coccidiocide on a regular basis. Prevention through proper sanitation is key.
<b>Warbles</b>	Botfly	Swelling or isolated lump around the shoulders (similar to an abscess)	Parasite must be removed. Seek veterinary assistance.

## General Conditions

Rabbits are susceptible to a great variety of conditions brought on by an equally great variety of causes. The lists of causes, symptoms and treatments below should not be viewed as complete. If you suspect your rabbit is experiencing health problems please do further research on your own or consult a professional before you begin treatment.

Condition	Cause	Symptoms	Treatment
<b>Sore Hocks</b>	Thin fur covering on feet, long toenails, rough cage floor.	Loss of fur on bottom of feet. Red, dry, ulcerated foot pads. Rabbit may be reluctant to walk.	Antibiotic ointment may help. Provide a solid surface in the cage for rabbits to rest on.
<b>Ringworm</b>	Fungal infection. Ringworm can be transmitted to other types of animals and to humans.	Crusty, circular shaped patches which appear in areas on the rabbit's face or feet. Hair loss will occur.	Treat rabbits with fungicidal cream or lotion. Be sure to disinfect cage and feeder.
<b>Hutch Barn</b>	Poor sanitation, wet cages. Splash of urine off of incorrectly placed urine guards.	Chapping and inflammation of the genitals.	Apply antibiotic cream. Ensure proper sanitation.
<b>Pasteurelosis (expresses itself in 3 forms)</b> 1. Snuffles 2. Hemorrhagic septicaemia 3. Abscesses	Pasteurella sp. organism Seems to be further induced by stress.	Sneezing, nasal discharge, poor condition, difficulty breathing.  Commonly seen in fryers. Pot-bellied, diarrhea, respiratory distress.  Lumps, usually around the head and neck.	No specific treatment. Reduce stress, improve ventilation, administer antibiotic to prevent secondary infection. Cull infected rabbits.  Same as above.  Drain abscesses, treat with antibiotics. Cull from herd.
<b>Pneumonia</b>	Bacterial infection of the lungs.	Quick laboured breathing with nose held high. Blush colour to lips and ears. Lungs congested.	Antibiotics effective if administered early
<b>Abscesses and Boils</b>	Various bacterial infections.	Lumps occurring under the skin.	May break and drain naturally. Ask the veterinarian for treatment.
<b>Malocclusion</b>	Inherited condition. Occasionally can be due to accidental tooth breakage.	Elongated upper or lower teeth. May prevent the animal from eating.	Clipping of teeth is a temporary solution. Affected animals should be culled.

<b>Enteritis (several different forms)</b>	Caused by various types of bacteria. May also be partially related to diet.	Severe diarrhea, dehydration and death.	Minimize stress and feed a high fibre diet. Some success treating with tetracycline
<b>Wry Neck</b>	Bacterial infection leading to inflammation of the middle ear.	Turning of the head to one side, loss of balance.	Ear drops, consult veterinarian.
<b>Weepy Eye</b>	Inflammation of the conjunctiva usually because of a blocked eye duct.	Discharge from the eye. Matted fur around the eye.	Eye drops, consult veterinarian for type. Help may be needed to open eye duct.

### Breeding and Pregnancy Related Conditions

Condition	Cause	Description	Treatment
<b>Metritis</b>	Bacterial infection of the uterus.	Low conception rate. Failure to produce milk.	Treatment with antibiotics and hormones. Seek veterinary assistance.
<b>Vent Disease</b>	Spirochete organism, spread through mating.	Scabby inflammation of the genitals in both sexes. Refusal to mate. Abortion.	Penicillin. Always check animals for infection before mating.
<b>Caked Breast</b>	Milk not drawn from mammary glands as fast as it is formed. Often leads to Mastitis.	Breast becomes swollen, hard and painful	Monitor feed consumption. Withhold concentrates, especially upon the death of a litter. Strip milk from glands.
<b>Mastitis</b>	Bacterial infection of the mammary system. Normally occurs just after kindling or after weaning.	Mammary system is swollen, reddened, hard, hot and painful. If untreated, doe will stop milk production and litter will die.	Doe must be treated immediately with antibiotics. Strip the glands free of milk. Apply a hot pack several times a day.
<b>Ketosis (Pregnancy Toxemia)</b>	Sudden breakdown of fat in overweight or malnourished does just after kindling.	Sudden death	Seek professional assistance. Maintain condition of breeding stock. Provide a nutritionally complete diet during pregnancy.

## Administration of Medications

Keep in mind that it takes a lot of time and experience to be able to recognize and correctly diagnose diseases. Do not hesitate to seek the help of an expert if you suspect your rabbits are ill. It is especially important to consult your veterinarian when purchasing and administering medications. The wrong type or dosage of medication can do a lot of harm so always be sure to double check.

In general medication is administered to rabbits in 2 ways:

### ORALLY

Gently grasp the rabbit by the loose skin (with the ears included) behind its neck and tip it back, sliding your other hand under its haunches at the same time. Let the animal lean against you as if you were checking the sex. Tip the rabbit's nose up. Gently press the jaws apart with the thumb and fore finger. Place the medicine well back on the tongue. Allow the rabbit to close its mouth and then gently stroke the chin until it swallows. Liquid medication can be given this way using a plastic eye dropper to put the medicine on the rabbit's tongue.

### INJECTION

There are three types of injections:

#### 1) Intramuscular (IM) - in the muscle

- a) IM injections should be given in the quadriceps, thigh or lumbar muscles. The needle should be inserted into the muscle with a quick thrust. Care should be taken to make sure the needle is inserted in the muscle, not just under the skin. You should pull back on the plunger to make sure the needle has not been inserted into a blood vessel, as evidenced by blood appearing in the syringe. The medication should be slowly injected into the muscle. A 1 inch needle is recommended for IM injections.

#### 2) Intravenous (IV) - in the vein

- a) Sometimes IV injections are necessary to get medicine directly into the bloodstream for a quick response. These are given in the jugular vein. Most people rely on veterinarians for this type of injection.

#### 3) Subcutaneous (SQ, Sub-Q) - under the skin

- a) SQ injections should be given in the back of the neck. A SQ injection is given by making a "tent" with the skin and injecting the solution under the fold of the skin, parallel with the muscle. The medicine should be slowly injected. A  $\frac{3}{4}$  or 1 inch needle should be used.

For thin solutions, such as vaccines, an 18 or 20 gauge needle should be used. For thick solutions, such as penicillin, a 16 or 18 gauge needle may be used. Use the smallest gauge needle possible when giving injections. A clean needle should be used (each time) when drawing medications or vaccines from a bottle. No more than 5 cc should be injected at any one site.

Each time you administer any form of medication you should keep a record of it. Withdrawal times should be strictly adhered to.

## Breeding

Rabbit breeding can be an interesting and rewarding hobby and even a profitable business. Before you breed rabbits make sure you have thorough understanding of proper breeding and husbandry techniques. Also, never breed your rabbit unless you have an arrangement in place for the babies (fryers, pet store, keep as breeding stock). There are only so many homes for the rabbits you do not need. Do not breed more babies than you can take care of.

### Selecting Rabbits to Breed

The most important thing to consider when you are selecting rabbits to breed is that they are healthy. Be sure to thoroughly inspect both the buck and the doe for signs of poor health and disease. Do not breed rabbits that are sick or that have heritable conditions such as malocclusion. Rabbits to be used for breeding should be in prime physical condition; overweight or underweight does may have considerable problems with conception and pregnancy.

Size	Doe	Buck
Small	5 months	6 months
Medium	6 months	7 months
Large	8 months	9 months

The age at which rabbits are ready to breed varies depending on their size and breed. Generally rabbits are considered adults and ready to reproduce when they have reached 75-80% of their full adult size.

The key to successful rabbit production is to use a good breeding program. A breeding program involves choosing bucks and does based on their pedigree and performance records. There are four types of breeding programs: linebreeding, inbreeding, crossbreeding and outcrossing. The table below highlights the differences between these programs. Note that linebreeding and inbreeding are not recommended programs for novice breeders.

Program	Description	Advantages	Disadvantages	Recommended For
<b>Outcrossing</b>	Mating unrelated rabbits of the same breed	Genetic diversity, large litter size, and increased vigour	None	Breeding show stock, especially animals to be shown in ARBA shows (these animals must be purebreds)
<b>Crossbreeding</b>	Mating unrelated rabbits from different breeds	Genetic diversity, large litter size, and increased vigour	None	Breeding market animals.

<b>Linebreeding</b>	Mating rabbits that are descended from the same animal, but several generations back such as cousins, uncles to nieces or aunts to nephews	Good traits are intensified	Bad traits are intensified	Improving traits found in one family line; such as a specific coat colour. This program is not recommended for novice breeders.
<b>Inbreeding</b>	Mating closely related rabbits such as brothers and sisters	Creates lines or strains of animals that are uniform in type	Small litter size and genetic abnormalities	Creating new breeds or varieties. Not recommended for novice breeders.

No matter which breeding program you choose, select breeding rabbits whose ancestry has evidence of good productivity and good genetics. Both members of a breeding pair should have desirable conformation and characteristics that will complement each other. For example, if the doe has weak shoulders, breed her to a buck with very strong shoulders.

## Principles of Breeding

Once you have selected which rabbits to breed you can place them together to mate. Consider the following information points to ensure a successful mating.

**OVULATION:** Unlike many other mammals, rabbits do not have a regular heat cycle. Rabbits are considered to be reflex ovulators and will release eggs 9-13 hours after they are mated. There are some signs that can indicate a doe may be willing to breed including: restlessness, rubbing her chin on the cage or equipment, or slightly swollen and purplish coloured vulva (female sex organ). Even if these signs are not present the doe may accept the buck.

**LIGHT:** Decreased light will result in reduced conception rates in rabbits. You may wish to supplement your rabbits with artificial lights (14-16 hours a day) especially if you are planning to breed in the darkest months (October-January).

**TEMPERATURE:** Extremes in temperature decreases the chance of conception. When it is too hot (33°C and above), bucks may stop producing viable sperm and become temporarily sterile. When it is very cold the doe is not as likely to conceive because her body is concerned with taking care of itself rather than nurturing young. If your rabbits are not housed in a temperature controlled area, consider the weather when you are planning to breed.

**LOCATION:** When ready to breed the doe, take it to the buck's cage. Never bring the buck to the doe's cage. The reason for this is that the buck has fewer tendencies to breed in the doe's cage; the doe is likely to fight him and not accept service. In the doe's cage the buck may also spend his time sniffing around and trying to mark everything with his scent.

**DURATION:** Most people put the doe in the buck's cage, watch it, and once the mating is complete they remove the doe right away. Because the doe ovulates following the mating, you may increase the conception rate by rebreeding the doe to the buck 4 to 12 hours after the initial breeding. Some just leave the doe with the buck overnight. Do not rebreed the doe too long after (36 hours or more) the initial breeding. This may disrupt the hormone cycle which could result in a miscarriage.



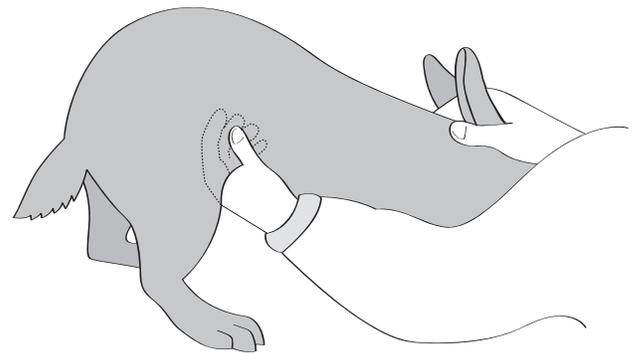
## Pregnancy

The gestation period (pregnancy) of a rabbit is approximately 31 days. This period can range by up to 2 days either way (29-33 days). During the pregnancy there are some special considerations that need to be given to the doe.

**PREGNANCY DETERMINATION:** Since baby rabbits are extremely small it can be very difficult to tell if a rabbit is pregnant. This cannot be determined just by looking. There are two common ways rabbit breeders use to try to determine if their does are pregnant.

### 1. PALPATING THE PREGNANT DOE

If the doe is pregnant, you may be able to feel the embryos by palpating her abdomen after 12-14 days. To palpate, grasp the ears and the skin over the shoulders in the right hand. Place the left hand between the hind legs, slightly in front of the pelvis, with the thumb on the right side and the fingers on the left side of the abdomen. Exert light pressure and move the fingers and thumb gently backward and forward. The embryos will feel marble-shaped as they slip between the thumb and finger. Handle the doe gently, and use only light pressure on the abdominal cavity. Accurate determination of pregnancy by palpation takes practice. If you are inexperienced, and diagnose the doe as non-pregnant, palpate her a week later to double check.



*Palpating the doe*

### 2. TEST BREEDING

Some people try to determine pregnancy by test breeding (re-mating) the doe 17 or 18 days after the initial mating. Test breeding may not be that accurate because some does will accept the buck even if they are pregnant and others will not accept him even if they are not. Test breeding can also cause problems because the doe has two uterine horns, each of which can carry babies. This means the buck could possibly mate with a pregnant doe resulting in one horn being fertilized on the first mating and the second being fertilized on the second mating. This dual pregnancy will create a hormonal imbalance and cause the babies in both horns of the uterus to form incorrectly.

## Feeding

Pregnant animals will have higher nutritional requirements than those of the same age and size that are not pregnant. Two weeks after breeding if it is determined that the doe is pregnant, consider increasing the feed provided to pregnant animals so they can keep up with their increasing need for nutrients. Pregnant does may also benefit from a protein feed to support the growing babies. Do not alter the type of food significantly (changing from pelleted feed to whole grains) and do not add treats (fruits and vegetables) to the diet if your rabbit is not already accustomed to them. You may also choose to free feed pregnant animals; be careful that free feeding does do not become overly fat as this can lead to pregnancy.

## Nest Box

A nest box should be placed in the doe's cage about 25 days after the doe was mated. This allows the doe to prepare a nest in advance and assures a proper place for the birth of young. Do not put the nest box in too soon or the doe will sit in it and poop in it.

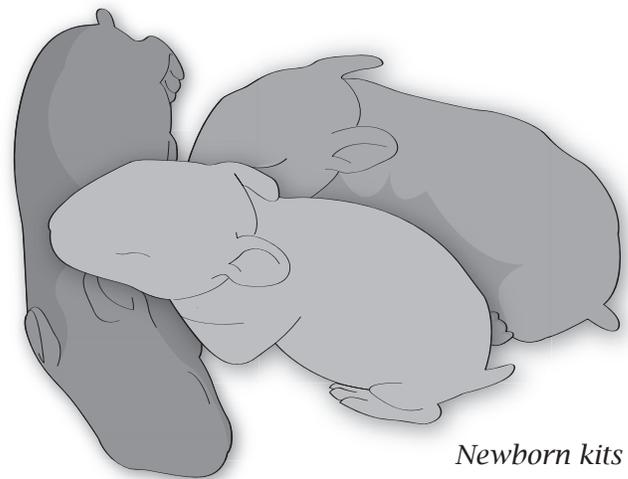
See the Facilities chapter for information on nest boxes.

When you put a nesting box in the cage, the doe will start taking up the nesting material in her mouth to make a nest. Straw, hay, shredded paper, and non-toxic wood shavings may be provided as nesting materials. Watch carefully to make sure that she is putting it in the nest box and not spreading it on the floor of the hutch. If she is spreading it on the floor, she is intending to have the litter on the floor instead of the nest box. You should move the nest box to where she is spreading the nesting material to encourage her to build her nest in the box instead.

The doe will pull her fur from her dewlap, chest, and belly and along her sides just before she is to give birth. For a day or two at kindling time the doe's fur is loose and it can be plucked gently. Make sure that there is enough fur pulled to keep the furless newborns warm. Occasionally a doe will pull no fur; you may want to keep a box of fur on hand from earlier litters just in case. Clean and disinfect the nest box after each use.

## Kindling

At the end of the gestation period the doe will kindle (give birth). The doe can give birth any time of the day or night. It takes about ten minutes for the doe to deliver all of her young. Litter size can range from 1 all the way up to 14. An average litter will have 4-6 kits (baby rabbits). Try to keep the area around the doe as quiet as possible when she is due to kindle. If you see that she is kindling do not disturb her. If she is nervous or becomes frightened she may kill and eat the babies. If the doe kindles the litter on the hutch floor, gather up the babies quickly and put them in the nest box or they will die from exposure. The doe will not move them, so it is up to you.



*Newborn kits*

Sometimes a doe will give birth prematurely. If these babies are more than 2 days early they will usually die. Other times a doe will prepare the nest with fur but never give birth. This is called a false pregnancy. You may rebreed the doe four days after she was due.

Once all the kits are born the doe will cover them with fur and get out of the nest box. Do not be alarmed if the doe is not spending a lot of time in the nest box; she may only feed the babies once or twice a day. Check the kits soon after birth to count them and remove any blood or dead kits. Babies are born with their eyes closed and are nearly hairless. They must be protected from exposure and must be confined together with their litter mates. If they crawl or fall out of the nest before their eyes open they have slim chances for survival.

A day or so after birth check to make sure the kits have been fed. Kits that have nursed will have a large, warm, rounded belly. Kits that have not nursed will have a sunken-in belly and may be making some small sounds. Do not worry about handling the kits, but be careful not to startle the mother.

## Orphan Kits

Occasionally a doe will refuse to care for her litter or will fail to produce milk. In such cases the young will starve within 2 or 3 days unless they are transferred to foster mothers or fed by hand. Fostering the babies to a mother with a litter of the same age is the best alternative, since hand raised babies are prone to health problems.

If you do attempt to hand feed baby rabbits, go to a pet store and buy a milk supplement for kittens. Wrap a face cloth around the kit and place it in your hand, on its back when feeding. Fill a clean syringe and gently squirt the supplement into their mouth. When the feeding is finished, wet the cloth and gently wipe their genital area several times. During nursing the doe would normally lick this area to encourage the young to go to the bathroom.

You must feed the kits twice a day for 3 weeks. In the 4th and 5th week they start to nibble solid food so you can cut the feedings to once a day. After the 5th week you should be able to stop feeding them the supplement.

## Lactation

When the mother is nursing her young she will have higher feed requirements than when she was pregnant. The doe's feed should be gradually increased over a 5-7 day period. Full feed should be maintained until 3-4 weeks after kindling and then should be reduced to coincide with weaning.

Young rabbits grow and develop very quickly. The chart below outlines some key stages in their growth during the lactation period.

Date	Stage
Birth - 10 days	Kits get more and more fur
Day 10 or 11	Eyes open (if they do not open, treat their eyes for infection) Ears start to come up (except lops) Kits may come out of the nest box
Days 12-18	Remove the nest box
Week 4 - 8	Kits will start eating solid food and can be weaned Kits should be removed from the mother's cage

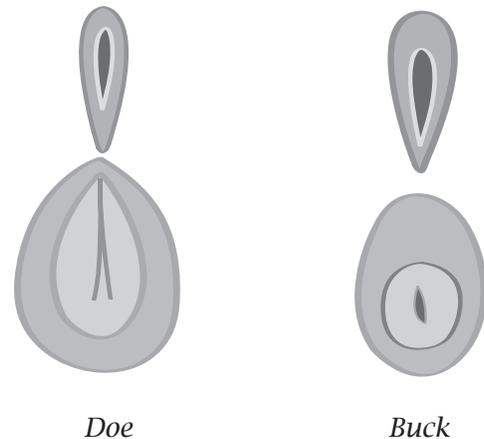
## Weaning

Weaning simply means taking the kits away from their mother. After weaning, the young will no longer have access to milk. Kits may start nibbling on solid food soon after their eyes open and should be eating by the 4th week. They can be weaned as early as the 4th week as long as they are eating solids. Usually, it is best to keep them with their mother until they are 6 weeks old and some breeders even allow them to go 8 weeks before weaning to maximize their nutrition and growth.

At the time of weaning you should sex the kits and separate the males and females into their own cages. Before they are 3 months old you should separate each rabbit into its own pen. This gives them a chance to develop without the stress of fighting, competing for food, or fur chewing. Make sure that growing young rabbits have access to a sufficient amount of high protein feed to support their rapid growth. Monitor them carefully as young rabbits are prone to digestive upset.

## Determining Sex

Sexing rabbits is not that hard and once you know how, you can identify a buck from a doe at age of 3 weeks and older. To determine the sex of the rabbit, use your fore finger and middle finger to press down the vent area just in front of the anus. In both the doe and the buck, the area will protrude. The doe will display a slit or central line running up and down. Each side of the slit will be banded in pink. The buck, on the other hand, will display, if less than 5 weeks old, a blunt white tube without a central line. It will not have pink covering either side of a center line. Older bucks will present a pink tube with a pointed end that resembles a bullet. Normally the testicles are not visible until about 2 or more months of age.



An older buck is easy to identify as the head and body is generally blockier than the doe.

Does of the medium and large breeds often develop a fold of skin under the chin called a dewlap. Older does are usually larger than bucks of the same breed.

## Record Keeping

Record keeping is a very important part of breeding rabbits. Whether you have 1 rabbit or 100 rabbits, you cannot make progress in your breeding program without accurate records. Records are the diary of your rabbitry and they should include information about the daily management, breeding and ancestry of your stock.

### Types of Records

**PEDIGREES:** These records show the family tree of each individual rabbit as listed. It shows the sires and dams, grand sires and dams, and great grand sires and dams. It lists the colour and senior weight of each rabbit. Pedigrees are very important because they can establish that your animal is purebred (in case you want to show it in an open show) or they can show ancestry so you can avoid accidentally inbreeding.

**HERD RECORDS:** This record includes every rabbit in your rabbitry. Listed are the sex, sire, dam, date of birth, colour and date it leaves your rabbitry. Comments such as buyers' names or rabbit show winnings help keep track of each rabbit.

**BREEDING RECORD:** Each breeding is recorded on this record. It will help you decide which does are the most productive and which bucks are the best.

**SHOW RECORD:** A show record includes dates and places of shows entered plus information on classes and awards received.

**HEALTH RECORDS:** Health record should include any symptoms or possible signs of disease and the date they were observed in each animal. If the animal receives any medication, the amount and the date must be recorded. If medication is given to a market animal the withdrawal time must be adhered to.

**FEEDING RECORDS:** These records should include the type and amount of feed being given to each animal. The record can also track the overall feed costs of the rabbitry.

Rabbit Pedigree				
<p><b>Name</b>                      Ear No. _____                      Colour _____                      Reg. No. _____                      Wt. _____</p>	<p><b>Sire</b>                      Ear No. _____                      Colour _____                      Reg. No. _____                      Wt. _____</p>	<p><b>G Sire</b>                      Ear No. _____                      Colour _____                      Reg. No. _____                      Wt. _____</p>	<p><b>GG Sire</b>                      Ear No. _____                      Colour _____                      Reg. No. _____                      Wt. _____</p> <p><b>GG Dam</b>                      Ear No. _____                      Colour _____                      Reg. No. _____                      Wt. _____</p>	
	<p><b>Dam</b>                      Ear No. _____                      Colour _____                      Reg. No. _____                      Wt. _____</p>	<p><b>G Dam</b>                      Ear No. _____                      Colour _____                      Reg. No. _____                      Wt. _____</p>	<p><b>GG Sire</b>                      Ear No. _____                      Colour _____                      Reg. No. _____                      Wt. _____</p>	<p><b>GG Dam</b>                      Ear No. _____                      Colour _____                      Reg. No. _____                      Wt. _____</p>
	<p><b>G Sire</b>                      Ear No. _____                      Colour _____                      Reg. No. _____                      Wt. _____</p>	<p><b>GG Sire</b>                      Ear No. _____                      Colour _____                      Reg. No. _____                      Wt. _____</p>	<p><b>GG Dam</b>                      Ear No. _____                      Colour _____                      Reg. No. _____                      Wt. _____</p>	<p><b>GG Sire</b>                      Ear No. _____                      Colour _____                      Reg. No. _____                      Wt. _____</p>
	<p><b>G Dam</b>                      Ear No. _____                      Colour _____                      Reg. No. _____                      Wt. _____</p>	<p><b>GG Sire</b>                      Ear No. _____                      Colour _____                      Reg. No. _____                      Wt. _____</p>	<p><b>GG Dam</b>                      Ear No. _____                      Colour _____                      Reg. No. _____                      Wt. _____</p>	<p><b>GG Dam</b>                      Ear No. _____                      Colour _____                      Reg. No. _____                      Wt. _____</p>
<p>Bred By                      Name : _____                      Address: _____</p>		<p>Sold To                      Name: _____                      Address: _____</p>		



**Herd Record**

Name	Tattoo	Sex	Sire Dam	DOB	Colour	Date Sold	Comments

**Doe Breeding Record**

Tattoo of Doe	Tattoo of Buck	Date Bred	Date Kindled	No. Born Alive	No. Dead at Birth	Comments

**Buck Breeding Record**

Tattoo of Doe	Tattoo of Buck	Date Bred	Date Kindled	No. Born Alive	No. Dead at Birth	Comments

**Rabbit Show Record**

Name of Show	Location	Date Entered	Ear Tattoo Number	Classes Entered	Number in Class	Show Placing

# Showing Rabbits

## Handling

Rabbits that are properly and frequently handled, usually become gentle, manageable and are unlikely to scratch when picked up. You will need to handle rabbits to examine them for diseases, sores, injuries, or to move them from one hutch to another. You will also need to handle your rabbit when you are entered in a 4-H rabbit show. Practice picking up and handling your rabbit regularly and both of you will be far more comfortable when it is show time.

## Removing a Rabbit from its Cage

Rabbits tend to struggle when you try to remove them from their cages. Follow these steps for safe removal:

1. Place the palm of your hand under the middle of the abdomen and lift.
2. If the rabbit struggles, use your other hand to grip the skin over the shoulder blades.
3. Take the rabbit out of the cage with the backside first and the head last.
4. When the rabbit is out of the cage, provide support to the hindquarters with your hand or body.

**BE VERY CAREFUL** when you are bringing them out that their toes do not get caught in the wire. A caught foot or toe could lead to serious injury.

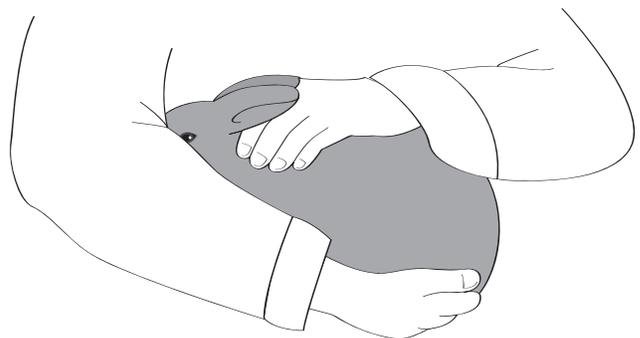
**DO NOT** lift a rabbit using its ears or front legs. They are not strong enough to support the rabbit's weight.

## Carrying a Rabbit

There are several different ways to carry rabbits. Select the one that is best for you depending on the size and temperament of your rabbit, as well as your size and strength. No matter which way you select, make sure you always keep a firm hold on the rabbit in case it suddenly tries to get away. This is most effectively done by grasping the loose skin over the rabbit's shoulders. If your rabbit does not have sufficient loose skin or if it has a delicate hair coat, you may choose to grasp the rabbit by the shoulders instead to avoid discomfort and/or coat damage. The rabbit's ears should also be tucked into your hand (if they are long enough) to help you maintain control over the head. When you grasp the ears be sure not to pull them, just lightly hold them in your hand.

### METHOD 1

1. Grasp the rabbit's ears and the fold of skin over the shoulders in your right hand.
2. Place the rabbit, feet down, on your left arm.
3. Support the rabbit's behind with your left hand.
4. Tuck the rabbit's head under your left elbow (this will prevent the rabbit from seeing everything that is going on and will help to keep them calm).



**METHOD 2**

1. Grasp the rabbit's ears and the fold of skin over the shoulders in your right hand.
2. Place the rabbit, behind down, on your left arm close to the elbow.
3. The rabbit's feet should be sticking out under your left arm and their face should be buried in your armpit.
4. Support the rabbit's back with your left hand.

**METHOD 3** (not recommended if your rabbit is likely to become startled)

1. Place the rabbit's feet against your stomach or chest.
2. Support the behind with your left hand.
3. Keep a grip on the rabbit with your right hand in case it jumps.

**METHOD 4** (use only to move rabbits a very short distance, quickly)

1. Grasp the rabbit's ears and the fold of skin over the shoulders in your right hand.
2. Lift the hind end with your left other hand and keep the rabbit facing away from you (all four feet should be pointing out in front of you).

**Flipping Over a Rabbit**

It is important to learn how to flip your rabbit over so you can trim its toenails and check its teeth. You will also be expected to turn your rabbit over during showmanship classes to demonstrate to the judge your handling ability. Follow these steps to safely flip over your rabbit.

1. Start with the rabbit sitting on the table facing the left.
2. Grasp the rabbit's ears and the fold of skin over the shoulders in your right hand.
3. Reach your left arm in front of the rabbit's body and place your hand on its rump.
4. Use your right hand to lift the rabbit's front end at the same time as using your left hand to slightly lift and roll the rabbit's hind end under (results in the rabbit sitting on its rump).
5. Continue to lower the rabbit until it is lying on its back, on or beside your right arm.
6. Continue to keep a firm grip on the shoulders and ears.



## Training

Many people believe that rabbits are not smart enough to be trained but this is not the case. Generally rabbits understand what you want them to do, they just are not interested in doing it. It is important to be regular with your training, and where possible provide incentives (treats) to reward the rabbit when it performs well. Before you exhibit your rabbit you will need to train it how to behave on the show table. During a rabbit show your rabbit will be expected to do two things: stay still for an extended period of time, and let you demonstrate for the judge how to do a health check.

### STAYING STILL

Train your rabbit to stay still by placing it on a show mat (carpet sample) on top of a table or counter. Pose the rabbit correctly and stand there with it. Ideally you will be able to remove your hands from the rabbit entirely and have it stay in position. If your rabbit does not stay still after you remove your hands, try keeping one hand covering its eyes.

If your rabbit is fidgeting or tries to run off, immediately place it back into position. Eventually your rabbit will learn to stay still. When your rabbit does start staying still for several minutes at a time be sure to reward it with a treat.

### HEALTH CHECK

During a rabbit show you will likely be asked to do a health check. This will involve turning your rabbit over and examining its abdomen, legs, and teeth. Ideally your rabbit will be calm as you perform the health check. This can be achieved if you handle your rabbit regularly. Turn it over and go through the motions of a health check slowly to allow the rabbit to get used to being touched. The procedure for a health check is explained on pages 43 and 44.

## House Training

If you plan to let your rabbit run loose in your house you will need to train it to use a litter box. Rabbits naturally like to go to the bathroom in the same spot repeatedly. Likely they always use the same corner of their cage as a bathroom. Pay close attention and when you notice which corner they have picked, place a litter box in the cage with them. Once they have become accustomed to using the litter box you can move it out of the cage and allow them to roam around a restricted area. Since they are already familiar with the litter box they should continue to use it when they are out of the cage. It is important to be patient, especially when house training younger rabbits. If you are going to allow your rabbit to explore a large area (big house, multiple storeys) you may need to put out more than one litter box.

**Note:** It is not recommended to let your rabbit run loose in the house unsupervised. Rabbits can easily become injured when running around the house (chewing electrical wires, falling, being crushed under furniture). Make sure you keep an eye on them when they are out of their cage.

### OTHER

Rabbits can be trained to do a variety of things such as walk on a leash, jump over things and stand up on command. If you are interested in training your rabbit to do these things be prepared to spend a lot of time practicing. Training a rabbit is more like training a cat than training a dog. Always be patient and provide positive reinforcement for good behavior.

## Grooming

Before a show you must ensure that your rabbit is clean. Regular attention and grooming should keep your rabbit relatively clean so when it comes to show time you should have minimal grooming to do. Check that you have completed the following before you exhibit your rabbit.

1. Trim the toenails (see toenail trimming in chapter on husbandry and health chapter).
2. Clean the ears and eyes with a slightly damp cloth or a Q-tip. Be very careful!
3. Spot clean any especially dirty spots or stains (common on the feet or the underside of the tail). Generally baths are not recommended for rabbits as they can be extremely stressful. Stains can often be removed from fur by rubbing in a little bit of white vinegar with a wash cloth. For more stubborn stains try brushing in a whitening detergent or Hydrogen Peroxide followed by household corn starch. If you use and soaps or chemical products on your rabbits be sure to rinse them out thoroughly so your rabbit does not ingest them and become sick. Always make sure your rabbit is completely dry before you return it to the cage so it does not get chilled.
4. Remove loose fur. This can be accomplished by using brushes, a damp cloth, a piece of nylon or your bare hands. Select the method that is best for your rabbit's fur type.

## Showmanship

Showmanship is defined as the ability to present something in an attractive manner. The purpose of showmanship classes is to present your rabbit and yourself to your best advantage. Showmanship should be employed in all classes regardless of whether they are conformation classes or those specially designated as showmanship classes.

### GENERAL TIPS FOR SHOWMANSHIP:

- Neatness and cleanliness are as important to the exhibitor as to the animal.
- Do not wear a hat.
- Do not chew gum or candy when showing.
- Do not speak unless spoken to by the judge or if you do not understand their instructions.
- Be polite and courteous to the judge and others at all times. Display good sportsmanship in and out of the show area.
- Be prepared to answer any questions relative to your exhibit and your project when asked by the judge.
- Be alert and attentive at all times.
- The animal should be set up properly each time after it has been moved.
- Do not pet your animal in the show ring.

## Personal Appearance

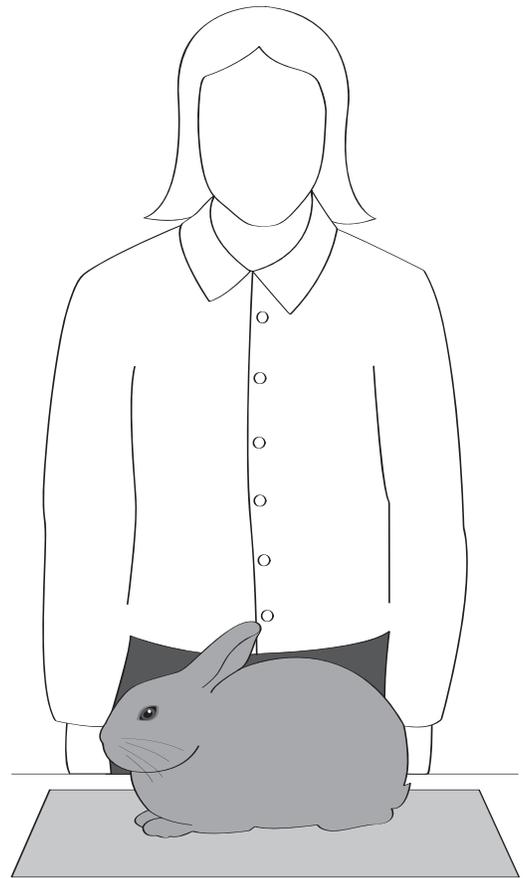
It is very important for 4-H exhibitors to be neat and clean when they are in the show ring. There is no prescribed uniform for 4-H rabbit exhibitors but a long sleeved shirt, pants and closed toe shoes are recommended. Extremes in appearance, such as large flashy jewelry (especially on the hands) should be avoided as they will distract the judge's attention away from the rabbit.



## General Showmanship Procedures

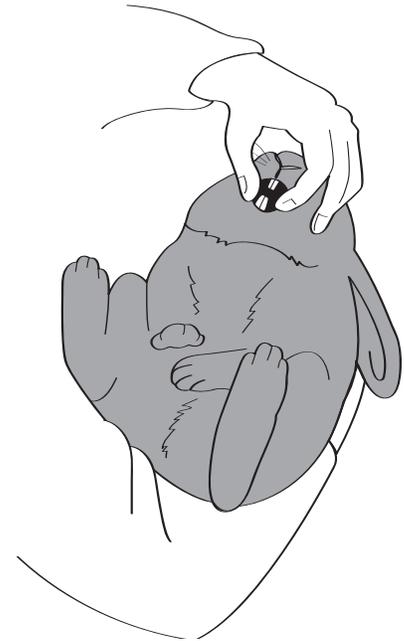
The following steps outline what normally happens in a 4-H showmanship class. The steps may or may not happen in the order listed.

1. Exhibitors bring their rabbits to the show table.  
Before placing the rabbit on the table put down a show mat (small carpet square). Always ensure that your show mat is clean so it does not distract the judge's attention away from your rabbit. Leave as much space as possible between your animal and the next animal on the table.
2. Pose the rabbit correctly. This will vary for different types of rabbits. Full arch type rabbits such as the Checkered Giant and the English Spot need to be posed up on their toes. Most other types of rabbits are posed with their forelegs and hocks flat on the table. Pose the front feet even with the eyes. Rear feet should be even with the haunch. Facing left is the natural position for a right handed presenter.
3. When you are standing at the table waiting for instructions place your hands on the table, on either side of the rabbit (unless you need to keep one hand on the rabbits face to keep it from running away). Never place hands behind your back, because if your rabbit moves suddenly, your hands will be too far away to grab quickly and regain control of your animal. Do not lean your legs on the table.
4. The judge may ask the exhibitors to lift and carry their rabbit. To carry a rabbit, follow the steps in the "Carrying a Rabbit" section above. If the judge asks you to move to a different spot on the table, always pick up the rabbit, do not just slide it along the table to the new location.
5. The judge may ask exhibitors to show a different view of the rabbit. Turn the rabbit by placing your hands on either side and slightly lifting. Smooth down and set up the rabbit correctly once it is in the new position.
6. The judge may call each exhibitor up to a separate table or approach them at the main table and request that the exhibitor show them a certain part of the rabbit or do an overall health check on the rabbit. When doing an overall health check, show and explain the following points to the judge:
  - **Ears** - open the ears so that the judge can see deep into the ear. Be sure to show both ears. Turn the rabbit in the other direction to show the other ear. Check the ears for ear mites, a legible tattoo, torn or missing portions of ears, and ear carriage.
  - **Eyes** - check each eye for signs of blindness or abnormalities.

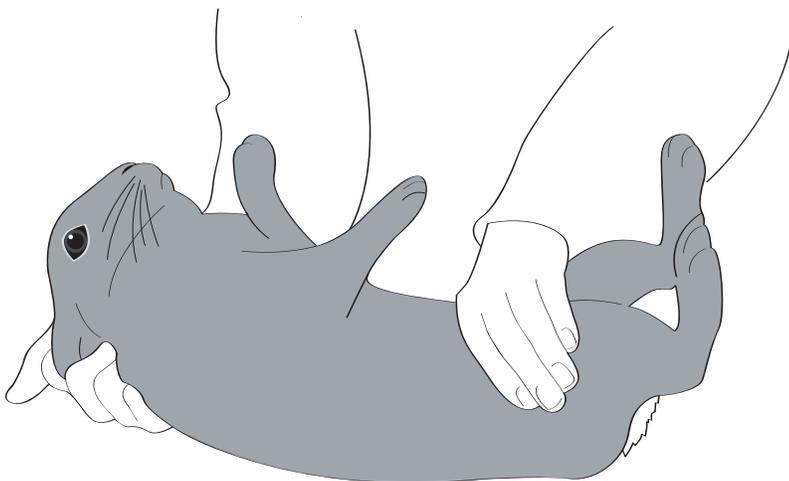


### FLIP THE RABBIT OVER

- **Nose** - with the head of the rabbit towards the judge, tilt the rabbit's head and show that the nose is clear of nasal discharge. If checking for snuffles, also check the inside of the front feet for caked mucus.
- **Teeth** - tilt the head towards the judge. Using your thumb and index finger gently pull the upper lip up and the lower lip down to show the teeth. Be careful not to pull the upper lip sideways as the cleft in the lip could become split. Check for tooth defects such as malocclusion, broken or missing teeth.
- **Front Legs** - place your hand just behind the elbow of the front leg and gently push forward to straighten out the leg. Run your index finger and thumb the length of the leg to check for straightness. Make sure to show both legs.
- **Hind Legs** - with the rear of the rabbit toward the judge and your hands just in front of the hind legs, push on the knees to straighten the legs. Check if the legs are bent, bowed, deformed or cow-hocked.
- **Toenails** - show the toenails on each foot by pushing your thumb into the center of the paw. If necessary, push back the fur with your index finger to expose the toenails. Do not forget to show the dewclaw on the front feet. Be sure to show all four feet unless instructed otherwise. Check for missing or broken toes, toenails, and unmatched toenails.
- **Hocks** - show the bottoms of the back feet to the judge, rubbing the fur to check for fur thickness or bare patches. You are checking for bald, sore or bleeding areas.



*Check the teeth*



*Straighten the hind legs*

- **Checking the Sex** - show the rabbit's sex to the judge by placing your thumb below the vent area and your index finger above it. Push towards the front of the rabbit with the index finger. Check for signs of vent disease, hutch burn or abnormalities. On male animals also show the judge both testicles.
- **Tail** - straighten the tail by gently pulling upward. Check to determine if the tail is straight, permanently set to either side or permanently out of line.
- **Abdomen** - run your hand over the chest and abdominal area to check for any abscesses, tumors swollen teats, or abnormalities.

### TURN THE RABBIT BACK OVER

- **Fur** - check the fur for condition and density. To check for condition stroke the fur. On some breeds you should stroke it towards the rabbit's head to show fly back or roll back. In other breed such as angoras, just stroke it towards the back. To check for density, blow into the fur or wool. You can also check for fleas and mites while you are doing this.
- **Colour** - check the fur for foreign coloured spots (white spots in coloured animals or coloured spots in white animals, unless specifically accepted in the breed standard).
- **Evaluation of Overall Balance** - pose the rabbit and check front, rear and side views for overall balance. Locate each of the following with your hand: shoulders, rib spread and fullness of loin. Check hindquarters for fullness by stretching your hand across width and depth of the rump. Check hips for smoothness and fullness by running your hand over the top of the hip to the tail.

When the inspection is complete, pose the rabbit and stand upright.

7. The judge will also likely ask each exhibitor several questions. When the judge asks a question, answer it with only the information the judge has asked for in a clear, concise and complete sentences. If you are able to hear what the person beside you said, avoid repeating their answer. Stick with what you know, and if you do not know just say "I do not know".
8. Keep showing your animal at all times until the class is completed and you have left the show area.

### Evaluation

The judge should recognize these attributes in his/her top showman:

- quiet, "unshowy," calm handling
- complete control at all times
- evidence of having trained rabbit
- the rabbit is always posed
- exhibitors attention always on the judge
- thorough knowledge of the project and general rabbit management

### Possible Questions a Judge Could ask a Junior 4-H Member

1. What is the breed of your rabbit?
2. What is the sex of your rabbit?
3. What is the colour of your rabbit?
4. Be able to identify every rabbit body part.
5. What type of fur does your rabbit have?
6. What are sore hocks?
7. What are abscesses?
8. Where do abscesses most commonly occur?



9. What is wry tail or screw tail?
10. What is a dewlap and where is it found?
11. What are wolf teeth or malocclusion?
12. Why do you check to see if a rabbit has a straight tail?
13. What ear should a rabbit be tattooed in?
14. How old is your rabbit?
15. What colour are your rabbit's toenails?
16. How do you remove hutch stains?
17. Name a rabbit disease that could affect your bunny.
18. What is a broken coat?

### **Possible Questions that a Judge Could ask a Senior 4-H Member**

1. Name 4 items that should be found in a First Aid Kit for a rabbitry.
2. What is a pedigree?
3. Name 4 characteristics of a rabbit in good show condition.
4. Name 4 rabbit breeds that have compact body types.
5. What does A.R.B.A. refer to?
6. Name the 4 smallest breeds of rabbits (under 4 pounds).
7. Name the 3 largest breeds of rabbits (over 10 pounds).
8. Name 4 commercial breeds of rabbits.
9. Name 6 fancy breeds of rabbits.
10. What is the length of the gestation period and what does it refer to?
11. Explain pinched hindquarters.
12. What is a Charlie?
13. What are the signs of ear mites?
14. When should a kit open its eyes?
15. What is palpation?
16. What are the signs of wry neck?
17. What are the signs of snuffles?
18. What is the most important factor in judging Dutch?



## General Rabbit Showmanship Score Card

<b>APPEARANCE AND CONDITION OF THE RABBIT .....</b>	<b>25</b>
· Flesh Condition	
· Coat Condition	
· Cleanliness	
· Condition of claws	
<b>RING MANNER AND APPEARANCE .....</b>	<b>25</b>
· Clothes neat, clean and suitable to occasion	
· Full attention given to the job at hand	
· Is on time, alert and aware of the judge, responds to judges requests	
· Courteous and polite to other exhibitors and judge	
<b>SHOWING ABILITY.....</b>	<b>25</b>
· Evidence of previous training	
· Handling of the project	
· Posing of the project	
· Project response to exhibitor's movements	
· Indication of good knowledge of animal's faults and habits	
<b>KNOWLEDGE .....</b>	<b>25</b>
· Ability to answer specific questions about the project animal (breed, pedigree, faults...etc.)	
· Ability to answer general rabbit management questions (feeding, health, husbandry...etc.)	
<b>TOTAL .....</b>	<b>100</b>



## Marketing

In the 4-H Rabbit project, not only can you learn about raising and caring for rabbits, but you can also learn how to start your own rabbit business. Rabbit business opportunities include selling breeding stock, rabbit meat, tanned pelts, wool from angoras, pets and rabbit by-products such as manure and earthworms.

### Marketing Rabbit Products

If you want to start a rabbit business, you will need to identify which product or products you will produce and where you will find people to buy them. The table below describes some popular rabbit products and possible markets for them.

Product	Preparation	Possible Markets
<b>Meat</b>	Animals must be processed (slaughtered, cleaned and dressed). Although processing at home is possible, if you want to sell meat from your animals for human consumption, the animals must be slaughtered in a licensed abattoir. See "Selling and buying BC meat - What you need to know: A Guide to BC's Meat Inspection Regulatory System"	Deli, restaurants, meat shops, private sale, ethnic markets, pet food processors.
<b>Pelts</b>	Pelt must be stretched, cleaned and tanned.	Garment manufacturers, crafters, toy makers.
<b>Angora Wool</b>	Wool can be sheared, combed or hand plucked. Combed or hand plucked wool is more desirable since it is of consistent length and does not have blunt ends like sheared wool. Angora wool can be dyed. It is often blended with sheep wool since on its own it can be very hot.	Spinners, weavers and knitters.
<b>Live Rabbits</b> (Pets, Show Rabbits or Breeding Stock)	Live rabbits will be ready for sale as soon as they are weaned. Many people purchasing for show or breeding purposes will want to buy rabbits closer to 6 months in age because it is easier to judge their conformation once they are mature. If possible prepare a pedigree for each rabbit you plan to sell.	Pet stores, fellow rabbit breeders, 4-H members.
<b>Manure</b>	Can be used directly from under the hutch. Air dried rabbit manure will not burn plants and can be used to top-dress lawns, or mulch roses, vegetables and flower beds.	Gardeners
<b>Earthworms</b>	Worms can be cultivated in worm beds underneath of rabbit cages. Worms must be collected into containers in order to be sold.	Gardeners, fishermen, zoos, fish hatcheries, poultry producers, and biology classrooms.

## **Advertising**

Advertising should be a very significant part of your marketing plan. Described below are some advertising methods. Consider which method would work best for your product in your area.

### **SIGNS:**

Put up a sign in your yard. If the road past your home is not very heavily traveled, the sign might get better results elsewhere. Have the sign made professionally if it is to be permanent.

### **LIST IN THE YELLOW PAGES:**

You can list your rabbitry in the classified directory for a relatively small amount each month.

### **TARGETED MARKETING:**

Approach individuals or businesses that you feel may be interested in your product to let them know what you have to offer.

### **NEWSPAPER ADVERTISING:**

A small classified ad which could be run regularly seems to be the best. Check your local papers to see how much it would cost to run an ad.

### **BULLETIN BOARDS:**

In every community there are bulletin boards where you can post “for sale” notices. Take advantage of this free advertising.

### **BUSINESS CARDS:**

An attractive business card is a good way to advertise.

### **PREPARE A SIMPLE BROCHURE:**

You may want to prepare a simple brochure that explains what you have available to sell. These are good to pass out at fairs and shows.

### **SHOW YOUR RABBITS:**

Show your rabbits at the local fairs and other shows. This will get your name in the community.

### **RADIO ADVERTISING:**

If your rabbit operation is large, radio advertising can be very effective. It can be very expensive however so you need to consider whether the effect would be large enough to justify the expense. If you advertise on the radio you also need to be able to supply many customers.

## Glossary

**ABCESS** - A hard swelling or isolated collection of pus or purulent matter occurring in the rabbit's skin. Accompanied by localized fever and heat.

**AGOUTI COLOR PATTERN** - A hair shaft that has three or more bands of color with a definite break between each color. Usually dark slate at the base, with two or more alternating light and dark bands or rings interspersed with black guard hairs. The head, ears, and feet usually have ticking; the belly color is much lighter and does not carry ticking. Examples: steel or gray Flemish, Chinchilla, and Belgian Hares.

**ARBA** - American Rabbit Breeders Association.

**Back** - The entire top portion of the rabbit, extending from neck to tail.

**BELL EARS** - Ears that have large tips with a distinct fall or lop.

**BELLY** - The lower part of the body containing the intestines. The abdomen. For purposes of defining color area, it is the underbody of the rabbit from the forelegs to the crotch area.

**BELT** - The line where the colored portion of the body meets the white portion just behind the shoulders. Example: Dutch breed.

**BLAZE** - A white area on the head and nose running up between the eyes on rabbits with multi-colored fur.

**BOILS** - See Abscess.

**BOWED LEGS** - Legs bent like a bow or curved outwardly in the middle, applied to both fore and hind legs.

**BREED** - A race or special class of domestic rabbits that reproduce distinctive characteristics of fur markings, fur texture, shape, size, and growth. A breed may be subdivided into varieties. Example: Black, Blue, and Tortoise varieties of the Dutch breed.

**BREEDER** - A person who raises a special breed/variety or varieties of rabbits in conformity with the accepted standards of perfection.

**BROKEN COAT** - Guard hairs broken or missing in spots, exposing the undercoat. Areas where the coat is affected by molt, exposing the undercoat.

**BROKEN EAR** - A distinct break in the cartilage which prevents erect ear carriage.

**BROKEN TAIL** - A tail that is or has been broken and is out of line. This is a disqualification.

**BUCK** - A normal male rabbit.

**BUCK TEETH** - See Wolf Teeth.

**BUFF** - A rich golden orange color with a creamy cast.

**BULL DOG** - A short, broad, bold head of pronounced masculine appearance.

**BUTTERFLY** - A dark-colored area on the rabbit's nose. Examples: Checkered Giant and English Spot breeds.

**CARCASS WEIGHT** - The weight of the rabbit after it has been processed.



**CARRIAGE** - The way a rabbit carries itself; the style or characteristic pose of a rabbit.

**CHARLIE** - A term meaning insufficient markings for the breed.

**CHEEK** - The sides of the face beneath the eyes.

**CHEST** - The front portion of the body between the forelegs and neck.

**CHOPPY (OR CHOPPED OFF)** - A condition in which a rabbit is not well filled out and rounded in the loin and rump area.

**COBBY** - A term meaning stout and stocky: short legged.

**CONDITION** - The physical state of a rabbit in reference to health, cleanliness, texture and molt of fur, and grooming.

**COW HOCKS** - Hocks that turn or bend inward, causing the foot portion to turn outward.

**CREAMY** - A term meaning light colored. The color of cream.

**CULLING** - The process of selecting only the best rabbits from a litter for future breeding and show stock by selling or slaughtering the least desirable specimens from a litter.

**DENSITY** - The property or quality of a thick coat.

**DEWLAP** - A pendulous fold or folds of loose skin hanging from the throat.

**DOE** - A normal female rabbit.

**DRESSING** - See Processing.

**EAR LACING** - A black or dark-colored line of fur outlining the sides and tips of the ear.

**ELIMINATION** - One or more defects presumed to be temporary and curable. Cause for elimination in a show or from registration until cured or corrected.

**EMBRYO** - A kit in the early stages of development inside the doe.

**EYE CIRCLE** - Even marking of color around both eyes. Example: Checkered Giant.

**EYE COLOR** - The color of the iris. The circle of color surrounding the pupil.

**FAULTS** - Imperfections. Conditions or characteristics that are unacceptable and will result in lower show placing but not disqualification. Examples: broken toenails, cheek spots too large, and poor tail carriage.

**FINE COAT** - The condition of a coat that is too fine in texture and lacking body. Guard hairs are too weak and thin in structure, similar to hairs making up the undercoat.

**FLABBY** - The condition of a rabbit when the flesh or fur hangs loosely. Not trim and shapely.

**FLANK** - The sides of the rabbit between the ribs and hips and above the belly.

**FLAT COAT** - The condition of a coat that lies flat or close to the body, lacking spring or body. Fine coat coupled with lack of density.



**FLY BACK** - The property of fur that causes it to return quickly to its normal position when stroked toward the head of the rabbit.

**FLYING COAT** - The condition of a coat that is loose and fluffy, caused by undue length and thinness of under wool and weak guard hairs.

**FOOT** - The part of the leg on which the rabbit stands. On the foreleg, that portion below the ankle or pattern. On the rear leg, that portion below the hock joint.

**FOREHEAD** - The front part of the head between the eyes and the base of the ears.

**FOREIGN COLOR** - Any color of fur, eyes, or nails that is different from the prescribed standard of perfection for the breed or variety.

**GENOTYPE** - The genetically inherited characteristics and potential of the rabbit stock.

**GESTATION** - The period of time that a doe carries young in its uterus. Pregnancy. Normal length is 28-32 days.

**GLOSSY** - The reflection of luster or brightness from naturally healthy fur in rabbits. Improved by grooming.

**GUARD HAIR** - The longer coarser hair of the coat, offering protection to the undercoat and providing wearing quality and sheen to the coat.

**HAIRLINE** - A narrow white line running between the ears, connecting the blaze and collar on the Dutch.

**HINDQUARTERS** - The after-portion or posterior section of the body, made up of loins, hips, hind legs, and rump.

**HIP** - The thigh joint and large, muscular first joint of the hind leg.

**HOCK** - The middle joint or section of the hind leg between the foot and hip.

**HUMP BACK** - The condition of having a hump or protrusion on the back, marring a gracefully arched outline.

**INBREEDING** - A breeding program involving the mating of closely related rabbit stock, such as brother and sister.

**INHERITED** - The degree to which a trait or characteristic is passed on from a parent to offspring.

**INNER EAR** - The concave (curved inward) portion of the ear.

**INVENTORY** - A list of everything on hand that is necessary to the project. A beginning inventory is taken at the start of a project year. An ending inventory is taken at the close of a project year.

**KINDLING** - The process of giving birth to kits.

**KIT** - Baby rabbit.

**KNEE** - The second joint of the leg, connecting the thigh and leg. In animals, more properly called the "hock". The second joint of the foreleg is the elbow.

**KNOCK KNEED** - See Cow Hocks.



**LAPIN** - French word for rabbit. Also, in the fur trade, it is dyed rabbit fur.

**LAZY TAIL** - A tail that is slow to assume its normal position when it is moved.

**LINEBREEDING** - A breeding program involving the mating of rabbits that are both descended from the same animal but are related several generations back. For example: mating first cousins, uncle to niece, or aunt to nephew.

**LITTER** - Young rabbits of a doe born at the same time.

**LIVE WEIGHT** - The weight of a rabbit before it is dressed for market.

**LOIN** - The part of the back on either side of the spine and between the lower rib and hip joint.

**LOOSE COAT** - The condition of fur lacking density in the undercoat, coupled usually with fine guard hairs and resulting in lack of texture. Does not indicate a slipping coat.

**LOPPED EAR** - Pendulous ear. Not carried erect. Falling to the side or front.

**LUSTER** - Brightness and brilliance of fur.

**MALOCCLUSION** - An inherited defect where the upper and lower jaws do not let the teeth meet, resulting in long, uneven teeth extending out of the rabbit's mouth.

**MANDOLIN** - The body of the rabbit is pear shaped, having the appearance of a mandolin laid face down. Back and saddle arch toward loins to make noticeably large, broad hindquarters.

**MARKED** - A rabbit's fur usually white, which is broken up by an orderly placement of another color. Also refers to rabbits that carry the pattern of the Tan variety.

**MASSIVE** - A term meaning bulky and heavy. Ponderous or large.

**MEATY** - The quality of being able to carry a large proportion of meat for the size and type of rabbit. A noticeable meatiness at the forequarters, back, saddle, loins, and haunches.

**MOLT (MOULT)** - The process of shedding or changing the fur twice each year. The baby or nest fur is molted at two months. The first natural coat of fur is fully developed at 4 to 6 months.

**MUZZLE** - The projecting portion of the head surrounding the mouth, nose, and lower jaw.

**NECK** - That part of the rabbit connecting the head and body.

**NEST BOX** - A kindling box inside the hutch or cage hole where the kits are born and live for the first 18 to 21 days.

**OFF-COLORED** - Applied to several hairs or patches of fur foreign to the standard color of the rabbit.

**OPEN COAT** - See Loose Coat.

**OUTBREEDING** - A breeding program involving the mating of unrelated rabbits of the same breed.

**PAIR** - A male and a female rabbit.

**PALPATION** - A method of examining by touch used to determine if a doe is pregnant and will bear young.



**PATCHES** - Small sections of fur with a color foreign to the standard of the rabbit.

**PAUNCH** - The prominent portion of the abdomen of the rabbit.

**PEDIGREE** - A written chart of the male and female ancestors of a rabbit, showing the date of birth and the parents, grandparents, and great grandparents of the rabbit.

**PELAGE** - The fur coat or covering.

**PEPPER AND SALT** - A flat, unattractive appearance of black and white ticking.

**PHENOTYPE** - The appearance of the individual rabbit.

**POOR COAT** - A term describing fur that is not in good condition through molting, rust, poor grooming, or ill health of the rabbit.

**PROCESSING** - The process of killing and preparing a rabbit for market.

**RABBIT** - A domesticated lagomorph of the genus *Oryctolagus Cuniculus*.

**RABBITRY** - A rabbit-raising enterprise or a place where domestic rabbits are kept.

**RACY** - A term meaning slim, trim, slender in body and legs, harelike, alert, and active.

**REGISTRATION** - The process of certifying that a rabbit meets the qualifications established by the ARBA for that breed and has a three-generation pedigree (see above). Requires examination by a licensed registrar.

**RIBS** - The curved portions of the sides immediately back of the shoulders and above the belly.

**RUMP** - The hind portion of the back and bones.

**RUST** - A reddish-brown coloration of fur, usually appearing on the side, flanks, or feet of rabbits, having the appearance of iron rust and being foreign to the standard color. Rust usually appears in American Blues, Black Havanas, and Lilacs. May be caused by fading through over-exposure to the sunlight, dirty hutches, or dead hair about to molt.

**SADDLE** - The rounded, intermediate portion of the back between the shoulder and loin.

**SANDY** - The color of sand, as in sand-gray Flemish Giants. Gray with reddish brown cast interspersed with dark guard hairs.

**SCREW TAIL** - A tail that is twisted. A corkscrew tail has more than one turn and is a disqualification.

**SELF OR SELF-COLORED** - The condition of having the same-colored fur over the entire head, legs, body, and tail. Not having ticking, agouti hair pattern, or shadings.

**SERVICE** - The mating act of the buck with the doe.

**SHADOW BARS** - Weakness of self-color in the fur of both fore and hind feet, appearing in the form of white or lighter colored bars running across the feet. Acts as a severe cut or penalty in scoring. Occurs more often in the agouti breeds than in selfs.

**SHOULDER** - The uppermost joint of the foreleg, connecting it with the body.



**SILVERED** - A term describing an abundance of silver-white or silver-tipped guard hairs interspersed through the fur that produces a lustrous silvery appearance.

**SLIPPING COAT** - A coat that is shedding or molting a profusion of hairs.

**SLOBBERS** - Excessive salivation creating wet or extremely moist and unsightly fur around the mouth and lower jaw and forelegs.

**SMUT** - A term describing slate grey fur that is foreign to the standard color for the breed. Example: Creme D'Argent.

**SNAKY** - A term describing the slender, narrow body that is typical of the Himalayan.

**SNIPEY** - A term describing a narrow and elongated head, with an appearance of undue leanness.

**SOLID-COLORED** - The condition of having the same color uniformity over the entire animal, not mixed with any color. Having no markings or shadings.

**SPORT** - A rabbit not true to the characteristic markings of its breed. Examples: English Spots, Rhinelanders, or Checkered Giants lacking white color.

**SPRADDLED LEGS** - A term describing forefeet bowed outward when viewed from the front. Knock-kneed. Hind feet not set parallel with the body. Turned outward from the hock joint.

**STOCKY** - A term meaning compact, stout, and cobby.

**STOPS** - In the Dutch, the white part of the hind foot extending upward from toes and ending abruptly about one third of the way to the hocks.

**STRAIN** - A race or stock of rabbits in any standard breed of the same family blood, having the quality of reproducing marked racial characteristics.

**STRINGY** - The quality of having aropy or sinewy finish, noticeable in the larger breeds of rabbits if not properly fattened for market.

**SWAY BACK** - The condition of having a distinct fall or scoop in that portion of the back between the shoulders and hindquarters, as distinguished from a gradually arching back.

**SWEEP** - An unbroken flow of designated markings. There should be no gaps or congested areas.

**SYMMETRY** - A harmonious proportion of head, ears, legs, and body structure conforming to the standard type of the breed represented.

**TAIL CARRIAGE** - The way in which a rabbit carries its tail. A tail being carried to one side or the other has poor tail carriage.

**TATTOO** - A code punched in the ear as a permanent method of identification.

**TEXTURE** - The character of fur as determined by feel or touch, such as "fine" or "coarse" texture.

**TICKING** - A wavy distribution of longer guard hair throughout the fur. Ticking is usually produced by black-tipped guard hairs and adds to the beauty of the fur. Examples: Chinchillas, Flemish Giants, and Belgian Hares.

**TRIO** - One buck and two does.

**TUCKED UP** - The trim appearance of a Belgian Hare, with rounded body and breast and belly gathered in closely to form an arch when the rabbit is sitting.

**TYPE** - A term used to denote body conformation of a rabbit or shape of a particular part of a rabbit, as in "head type". The general description of the physical makeup of the rabbit.

**TYPICAL** - A term describing an ideal representative of any given breed or variety as applied to type, color, or fur quality.

**UNDER COLOR** - The base of the fur shaft. Shaft next to the skin. Not the belly fur of the rabbit.

**UTERUS** - Organ in the doe in which developing kits are contained and nourished before birth. Also called the womb.

**VARIETY** - A subdivision of any recognized standard breed, distinct in color of fur from other subdivisions.

**WALL EYES (MOON EYES)** - The condition of having a milky film over the cornea or appearance similar to a moonstone. Colored eyes having an extremely light iris, giving the eye a glazed appearance.

**WEANING** - The process by which young rabbits become independent of the doe for their nourishment. A young rabbit is weaned when it is between 4 and 8 weeks old, depending on the breeding schedule used and the breed of rabbit.

**WOLF TEETH** - Protruding or elongated teeth in the upper and lower jaw caused by improper alignment of the upper and lower front teeth preventing normal eating action.

**WOOL** - A term describing the fur of Angora rabbits. The guard hairs and under-fur being 2-1/2 to 5 inches long and resembling fine wool in texture.

**WRY TAIL** - Abnormally bent, curled, or twisted tail. Permanently held to one side. A disqualification for a rabbit.

## References

**American Rabbit Breeders Association**

<http://www.arba.net/>

**British Columbia Meat Inspection Regulation** (under the Food safety Act) 2004

[http://www.qp.gov.bc.ca/statreg/reg/F/349\\_2004.htm](http://www.qp.gov.bc.ca/statreg/reg/F/349_2004.htm)

**Debmark Rabbit Education Resource**

<http://www.debmark.com/rabbits>

**My Bunny – From Conception to Weaning**

<http://www.debmark.com/rabbits/bunnies.htm>

**North Dakota State University – Rabbit**

<http://www.ag.ndsu.edu/pubs/alt-ag/rabbit.htm>

**Nutrient Requirements of Rabbits**, Second Revised Edition, 1977 (1977). Board on Agriculture and Natural Resources

[http://dels.nas.edu/banr/nut\\_req.shtml](http://dels.nas.edu/banr/nut_req.shtml)

**Official Guidebook to Raising Better Rabbits and Cavies**. American Rabbit Breeders Association (1996). M & D Printing Co. Henry, Ill.

**Rabbits, Rabbits, Rabbits**

<http://jan.ucc.nau.edu/~julie/buns/bun.html>

**Reproductive Tract of the Female Rabbit**

[http://www.medirabbit.com/EN/Uro\\_gen\\_diseases/generalities/female\\_organ.PDF](http://www.medirabbit.com/EN/Uro_gen_diseases/generalities/female_organ.PDF)

**Selling and buying BC meat**- What you need to know: A guide to BC's Meat Inspection Regulatory System

[http://www.bcfpa.ca/guideBook/guide\\_Introduction.html](http://www.bcfpa.ca/guideBook/guide_Introduction.html)

**Spinning those Angora Bunnies**

[http://www.tanagersongfarm.com/fiber\\_arts/spinning\\_angora.html](http://www.tanagersongfarm.com/fiber_arts/spinning_angora.html)

**Standard of Perfection: Standard Bred Rabbits and Cavies**. American Rabbit Breeders Association (1996). M &D Printing Co. Henry, Ill.

**The Almost Perfect Guide to Feeding Your House Rabbit - Carrot Café**

<http://www.carrotcafe.com/>