



Technical Note # 58

Tropical Rabbit Production

A guide to raising rabbits with few resources

What's Inside:

Why Raise Rabbits?

Not Everyone Can Raise Rabbits

Feeding Rabbits

Rabbit Cages

Breeding Rabbits

Rabbit Diseases

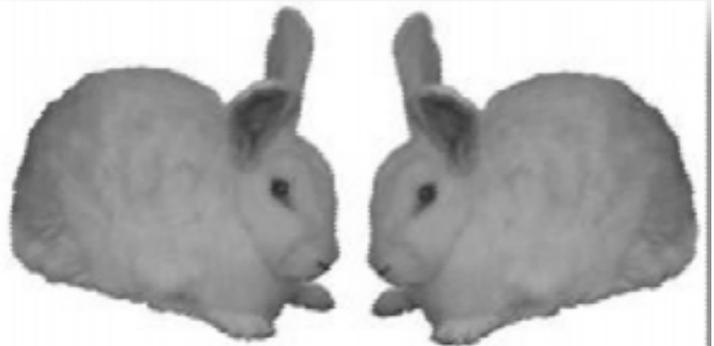
Dressing Rabbits

Rabbit Management

by Wayne Niles

Published 2009

Originally titled, Keep 2 Female Rabbits, this guide focuses on successful rabbit production techniques in Haiti and areas of similar economic environment



INTRODUCTION

Rabbits are animals for folks that like to eat meat and want to raise it quickly. Rabbits reproduce quickly; up to eight bunnies every three months. A young rabbit can weigh four pounds in three months -- bigger than a broiler chicken. Rabbits are easy to raise, both in urban and rural areas. They don't take up much space. Rabbits are a popular meat in Europe, China, and the Americas. Anyone who raises rabbits will never lack for meat for their table and will realize other benefits. Have you considered raising rabbits?

WHY RAISE RABBITS?

For the Good Meat They Produce

Rabbit meat is good and is flavored like chicken. **A three-month-old rabbit has more meat than two barnyard chickens at five months.** As they are small animals, you can kill one for a meal for the family or to receive guests. You can't do that with a goat or cow; they are too large. Those who raise rabbits never lack for meat at the table.

In developed countries, doctors recommend rabbit meat to those who need to lower cholesterol. Rabbit meat is a lean, healthy meat with good protein to maintain health and rapid healing after injury or illness.

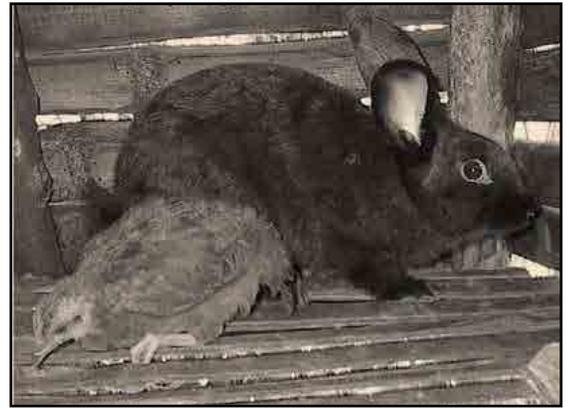
Rabbits grow quickly and have lots of offspring. A female (doe) that is well fed and cared for can produce up to 12 bunnies in one litter and have up to 6 litters a year. If you spend no money on concentrated feeds and raise your rabbit only on forage greens you can expect a rabbit to wean 6 bunnies each litter and up to 4 litters in a year. At no expense for feed a rabbit can produce up to 24 bunnies a year. If you keep two females, they will produce 48 bunnies a year. That is almost one bunny for every week of the year.

When you feed rabbits concentrated feeds such as corn, or wheat bran, they produce larger litters and the bunnies grow faster. Fed concentrates and forage, the doe will dependably produce 7 bunnies in each litter and have 5 litters

a year. That is 35 bunnies a year. If you keep two female rabbits, they will produce 70 bunnies a year. That will be one a week for home consumption and 18 to sell, barter or share with friends.

Bunnies grow quickly. They double their birth weight in 6 days, and in three to four months they weigh four pounds. A family of 6 will find plenty of meat to eat when they cook a three-month-old rabbit. Rabbit meat is rich in protein, vitamins, and micro elements. Rabbits turn leaves and grass that humans can't eat into good tasting meat we can eat.

Rabbit manure is excellent for the garden. Folks who raise rabbits in town will find a ready market for the sale for rabbit manure to flower and vegetable gardeners. Rabbit manure is richer for the garden than goat, duck, pig, or cow manure, and compost made with rabbit manure is almost as rich as commercial fertilizer and better for the garden.



*A 3-month chicken and 3-month rabbit.
Source: Wayne Niles*

For Income They Can Generate

In places where people buy rabbits for meat, you can make more money in a year with the sale of rabbits than with any other kind of animal. In Haiti, for example a three month old bunny sells for \$4. If a doe produces 20 bunnies in a year those bunnies are worth \$80 per year. You can't make \$80/year with a goat or cow. A young person who keeps eight female rabbits can make up to \$640/year. Hence with a rabbit a young person can pay for school, books, uniform, shoes, bicycle, and more thanks to rabbits. In many places rabbits are not easily sold. Such places are ripe for the creation of new markets for rabbit products by an innovative entrepreneur.

NOT EVERYONE CAN RAISE RABBITS

Folks Who Lack Discipline Can't Raise Rabbits

Raising rabbits requires good management and discipline. Rabbits must be fed and given water every day; they don't do well with haphazard care. If they run out of water for one day they will die. If you don't go to the effort to collect good quality feed every day, they will get sick and likely die. If you don't keep the cages clean, removing uneaten feed and refuse, they will die because rabbits are naturally clean animals and can't survive in an unclean environment. Folks who are used to allowing their goats, chickens, and pigs to range freely and search for their own food, who do not even provide water for their animals, will probably not adapt well to the management required to raise rabbits. Rabbits will be a benefit to folks who are dependable, disciplined, and responsible managers of their animals.

Folks Who Cannot Easily Find Feed Can't Raise Rabbits

There are places that are too dry to raise rabbits because there is not enough forage available. A mother rabbit with half a dozen bunnies can consume a large sack of leaves in one day. If you have four producing rabbits, you will need to collect four sacks full of leaves, vines, grass, fruit and such every day. In places where there is winter or more than four months of dry season each year, raising rabbits on cut and carry feed alone could be hard. Most everywhere else, finding feed for rabbits should not be a problem. Even in cities, most markets have an abundant supply of waste vegetables that rabbit raisers can collect to feed their rabbits.



*Napier or Elephant Grass is a good year- round
Forage. Source: Larry Yarger*

Folks Who Have no Place to Keep Them Can't Raise Rabbits

Rabbits need shade. The rabbit cage must be positioned so the rabbits are not exposed for long periods of direct sunlight. A mother rabbit and her bunnies need a space of about one square meter (3 feet x 3 feet). You need room for three or four cages; one for the male, one for each producing female, and one for weaned bunnies growing out for sale. Rabbits need to be protected from thieves, dogs, and rats; rabbits raised in an open yard may have problems with dogs and thieves. If you have a corner of the yard that is safe from thieves and dogs, has shade from the afternoon

sun, and is out of the wind and rain, you can raise rabbits.

FEEDING RABBITS

How Rabbits Should be Fed

Rabbits need to eat lots of fresh, green vegetative matter every day. Rabbits are nocturnal, and eat more at night. Fill the cages (mangers) with feed before the sun sets. Rabbits like fresh food. They will refuse greens that have been dried unless the rabbits have been trained to eat good quality dry hay and given plenty of water. Give them fresh feed twice a day; once in the morning and plenty at night. A nursing doe will need more feed than a pregnant doe or young buck.



Rabbits Require Lots of Shade. Source: Wayne Niles

A cage with a dozen young, growing rabbits that have been weaned will consume lots of feed. Here is an easy way to know if you are feeding them enough: if they eat everything, you have not given them enough; if they leave a lot, you gave them too much. The ideal is for there to be a small amount of leftover feed in the morning.

What Rabbits Eat

Rabbits eat most anything green, just like goats and cows. Here are some of the best feeds for rabbits by family: **(See table at the end of the Tech Note for a full listing of rabbit forages, together with their scientific names and parts eaten.)**

Legume or Bean family: These are all kinds of plants, vines, shrubs, and trees that produce a pod that splits on a single seam. The leaves of these plants are some of the best feeds for rabbits because they are high in protein. Examples are leaves of pigeon pea, peanut, beans, cowpea, velvet bean,

Stylosanthes, soybean, *Leucaena*, tropical kudzu, *Centrosema*, jack bean, forage peanut, lablab bean, *Gliricidia*, *Sesbania*, *Calliandra*, and *Albizia*.

Grass family: Rabbits eat all kinds of grasses such as guinea grass, elephant or napier grass, signal grass, maize and millet leaves.

Trees: There are many non-leguminous tree leaves rabbits will eat such as banana, mango, moringa and nacedero.

Fruit: Rabbits love fruit. Feed them all the fruit that cannot be sold or eaten by humans such as overripe bananas (with the peel), mangoes, papaya, kenép (Spanish lime), avocados, pineapple and guava.

Weeds: Lots of weeds are good feed for rabbits such as crab grass, pig weed, goose grass and Spanish needle.

Leaves of cultivated plants: Sweet potato, maize, green beans, carrot tops, cabbage, and so on. Kitchen scraps: Feed your rabbits kitchen and table scraps such as potato peels, carrots, papaya rinds, water melon rinds, avocado skins and celery leaves.

Market waste: Rabbits thrive on market waste such as waste lettuce, cabbage, carrots, apples, and other fruits and vegetables.

Garden waste: Rabbits should be fed all waste left over after the harvest from home gardens of peanut hay, green bean leaves, corn husks, cowpea and bean hulls, and unusable fruits and vegetables.



Perennial Peanut is a Nutritious Forage and makes excellent Hay. Source: ECHO Staff

Rabbits will also eat concentrated commercial (pelleted) feeds such as those made from corn, beans, wheat and millet.

Other Principles in Feeding Rabbits

Rabbits require a variety of feed. It is not good to feed rabbits just one kind of feed for a long period of time. Always include two or three different kinds of forages in their feed. It is best to mix vines, tree leaves, plant leaves, and kitchen scraps. By offering several kinds, they get more complete nutrients in their food. What one feed lacks, another will add to the diet.

When introducing new feed to the rabbits, give it to them in small amounts for several days and observe them to make sure they can adapt to it. Once you can see that there are no adverse affects from feeding it, you can include it in your daily ration. This holds true for whatever you may feed them, whether greens, fruit, grain or concentrate.



Feed a Variety of Forages. Source: Wayne Niles

Phytotoxins: Many forage species will have toxic factors occurring naturally that may or may not have adverse affects on rabbit health and development. They range from compounds that are mildly toxic to those that are extremely dangerous. For this reason, you should know a little about such plant chemicals.

According to Cheeke, et. al., virtually everything you will feed your rabbits is potentially poisonous (even water!) For this reason the relationship between the toxicity of the feed and the amount fed becomes very important. Biologists have said that there is a threshold level for toxins, and at concentrations below this level a toxin essentially becomes non-toxic, and some actually become important contributors to the digestive system.

Some Phytotoxins in Rabbit Feeds

Toxin	Indications	Plant Origins	Observations
Goitrogens	Inhibit thyroxin and produce goiters	Brassicas	Fed in moderation goiters will not occur
Gossypol	Can cause tissue damage in some animals	Cotton / cottonseed meal	Feed at moderate levels (5-10% of the diet)
Lectins (Hemagglutinins)	Cause blood clotting in the digestive tract, damaging intestinal wall and reducing absorption	Soybean, common bean, broad bean – all uncooked dry beans contain lectins	Cook all beans before feeding; heat destroys lectins
Mimosine	Amino acid causing loss of hair	<i>Leucaena</i> spp.	Feed at no more than 10% of the diet
Mycotoxins (toxic substances produced by molds growing on feeds)	<p>Aflatoxins cause rabbits to go off feed and water, become dehydrated, lethargic, develop liver damage and jaundice –</p> <p>Ergot causes blood circulation cutoff in feet, causing gangrene; may cause abortion; shuffling of feet suggesting pain</p> <p>Citrinin, orchratoxin, T-2 toxin, zearalenone can cause kidney, liver and reproduction problems, even death; sometimes cause enteritis</p> <p>Dicumarol inhibits vitamin K, causing a deficiency, spontaneous internal hemorrhaging and death</p>	<p>Aflatoxins – from molds on grains and seed meal.</p> <p>Ergot – from seed heads of grains</p> <p>Citrinin, orchratoxin, T-2 toxin, zearalenone also from grains</p> <p>Dicumarol – from moldy clover hay</p>	<p>Keep grains and seed meal dry</p> <p>Don't feed grain that is discolored or deformed</p> <p>Keep hay clean and dry; if wet or moldy, use as mulch or compost ingredient</p> <p>Don't feed grain or hay that is moldy, or that has a dusty appearance; this dust may be mold spores which can also irritate the rabbits</p>

Some Phytotoxins in Rabbit Feeds

Oxalates (Metal Chelator group)	Bind w/ Ca^{2+} in the blood, causing tetany	Amaranth, spinach, chard, beets, aroids, rhubarb, sorrel, others	Rabbits can be fed these at moderate levels w/o problems
Pyrrolizidine Alkaloids	Cause liver damage in many animals	Comfrey, crotalaria, tansy ragwort	Rabbits are resistant to effects of PA
Saponins	Reduces palatability of forage (bitterness); promotes feed waste	Leguminous forages such as alfalfa and clover	Reduce cholesterol levels; this may be a reason rabbit meat is low in cholesterol
Protease (Trypsin) Inhibitors	Reduces protein digestibility, causes pancreas enlargement and reduced growth	Soybean, soybean meal and most dry beans	Cook before feeding; heat destroys protease inhibitors



Use a Manger to keep Feed Clean.
Source: Wayne Niles

is important to clean their drinking vessels regularly. During dry season, feeds become drier and rabbits will consume more water because they are getting less from the leaves they eat. During rainy season, rabbits will consume less water.

Rabbits like fresh, clean feed. Do not put rabbit feed on the cage floor where the rabbits can walk and urinate on it. Feed should be placed in a manger that keeps the leaves above the rabbits, off the floor. If rabbits are allowed to trample their feed, it will wilt, be soiled and unfit for consumption. When caring for rabbits, remove the feed they have not consumed.

Rabbits need fresh, clean water available at all times. A nursing rabbit with six bunnies will need to drink two cola bottles of water (1.2 liters) a day. Their water must be clean. If you give them water in a bowl and they have soiled in that water, it will not be fit for drinking. It



Supply Fresh Water every Day. Source: Wayne Niles

RABBIT CAGES

Protection from Wind, Rain, and Sunshine

Rabbits cannot be allowed to run free like chickens and goats. Dogs will eat them. Rabbits must be kept in a cage or hutch to protect them from all that could cause them harm. Their cage must protect them from the sun, from wind, and from rain. It must be located in the shade, particularly shaded from the afternoon sun.

The rabbit cage must be open to allow air and light to enter freely, yet so designed that driving rains and winds do not cause the rabbits stress. The cage must be strong enough to keep dogs out and no openings large enough for rats to enter. The floor of the cage must be open to allow rabbit pellets and urine to fall through. If the floor openings are too large, their feet might get caught and the rabbits hurt themselves.



Bamboo Rabbit Hutch. Source: Larry Yarger

How to Make a Rabbit Cage

You can make a cage out of anything solid: boards, bamboo, steel, metal sheet roofing, fencing, chicken wire, feed sacks and such. **A mother rabbit needs a volume of 60 cm x 100 cm x 60 cm (2 ft x 3 ft x 2 ft) as a minimum.** This is half an arm's length wide and a bit less than an arm's length deep and high. You shouldn't make a cage so deep you can't reach the back to clean it. You can always make a cage larger, but a cage for a mother rabbit should never be smaller than the minimum.

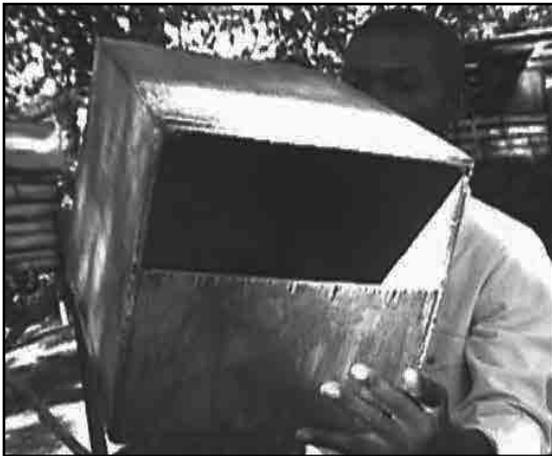
A cage for young weaned rabbits to grow in should be larger. For 10 weaned, growing bunnies, you need a cage 125 cm x 125 cm x 60 cm high (4ft x 4 ft x 2 ft high). A grower cage could be larger. All openings in the cage must be smaller than the littlest bunny to keep them in. (See Appendix on how to make a simple rabbit hutch.)



Wood and Wire Hutch. Source: Wayne Niles

The Nest or Kindling Box

You need to prepare a nest box for each doe. You can make the box out of anything durable: wood, steel, clay, or plastic. The box needs to be large enough for the doe to turn around in. A typical nest box will be 30 cm x 90 cm x 30 cm (1 ft x 1 ½ ft, x 1 ft). Remember to make the door to your rabbit's cage big enough so that you can put the nest box through it and bring it back out to clean it. Similarly, the cage needs to be big enough for the mother rabbit to move around outside the nest box once it is in place. The front of the box should have an opening so the mother can enter but the babies can't jump out



Wooden Kindling Box. Source: Wayne Niles



Open-Top Kindling Box. Source: Larry Yarger

until they are 18 days old. This means about 15 cm (6 in) high. The bottom can be made of fine wire cloth but small enough so the bunnies cannot get caught in it or pass through.

Mangers, Concentrate Feeders and Waterers

Forage. Every cage needs to have a **manger** to hold forage. The feed must not be allowed to fall to the cage floor where the rabbits can trample and soil it. Position the manger above the floor at a convenient height with openings so the rabbits can get at the leaves and pull them through.

Concentrate. If you are going to give your rabbits concentrated feeds, you will need a feeder to hold it which prevents the rabbits from climbing into it and wasting the feed. Any open vessel will do but it is best to find something the rabbits cannot turn over and spill.



Manger above Rabbits, right. Source: Wayne Niles



Waterers made from Plastic Containers. Source: Wayne Niles

Water. Every cage needs a waterer so the rabbits have access to clean drinking water. Any open vessel will do. A sardine can or plastic bottle cut open so the rabbits can get at the water is fine. Other options are a clay vessel, or a piece of bamboo or something made of cement. Commercial waterers use a ball in a tube to prevent water from spilling out while allowing the rabbits to lick the water. Another alternative is a cement cup that can support an inverted water bottle.

Avoiding Losses

Rabbits are often lost when they fall out of the cage or when dogs break in and steal them. Your cage must be solid and well built with no bunny-sized holes. When bunnies are less than two weeks old, they should stay in the nesting box, as most cages have holes big enough for them to fall through. It is important that the nest box opening be high enough (15 cm or 6 in) that the bunnies cannot jump over it.

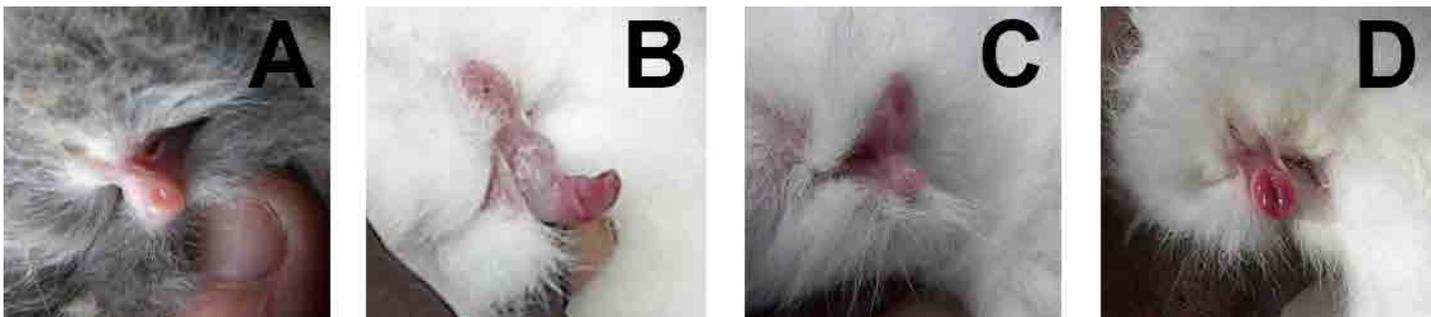
To protect against dogs, the cage needs to be solid with a substantial door. Suspend the cage high enough to be out of easy reach of most dogs. If dogs are a serious cause of losses, attach cans or other metallic items that will make noise when they bother the cage. Alternatively, move the rabbits inside a shed that is dog proof. Be creative in using resources available to you to protect your rabbits from rats, mongooses, ants, snakes and even humans.

BREEDING RABBITS

You have to manage the breeding of your rabbits just as folks have to manage the breeding of pigs or cows. The does are nearly always in heat. It is theoretically possible to breed a rabbit the same day it kindles (gives birth), though that would not be good for the rabbit's health. Normally, a female should be bred 30 to 40 days after kindling.

How to Tell If a Rabbit is Male or Female

You can determine the sex of a rabbit when it is more than two weeks old. To sex a rabbit, spread its legs and part the hair around the genitals. At two weeks the male genitals are round and pop up whereas female genitals are oval and attach to the body on one side. At three months, males have clearly-developed testicles and a penis presents itself when you pull back the skin.



Rabbit Genitalia: A: Young Buck, B: Adult Buck, C: Young Doe, D: Adult Doe Source: Wayne Niles

Breeding Age

Rabbits normally do not reach sexual maturity before five months, and with a poor diet it will take longer. It is never a good practice to breed an animal before its body has grown sufficiently to handle the job of bearing offspring. It needs to have the physical strength to produce a good litter. Often litters are aborted when the doe is not physically fit to handle the pregnancy. It is in your interest to not breed them too young. **A female should weigh at least 2.5 kg (5 lbs) before being bred for the first time.**

How Rabbits Mate

Your breeding male must always be kept alone in his own cage. Males that share a cage with a female will likely not be interested in mating. A male kept with a bred female will likely kill the bunnies when they are born.

When a female is ready to be bred, you take her from her cage to the male's cage. If you bring the male to the female, she will defend her territory, fight with and sometimes kill the male. **When you carry a rabbit, use two hands; NEVER carry a rabbit by its ears.** Hold the front feet in one hand and the back feet in the other. A female that is mistreated will not likely come into heat.

When you present the female to the male, breeding will take place in a few seconds. When the male falls over the female is bred. If the female is not in heat, she will fight with the male. Don't leave them together too long for they will wear each other out. Remove the female and try again the next day. Never leave a female in the male cage more than 15 minutes. To assure insemination, present the female 2-3 times; mornings and evenings are best. When she has been bred, write the date down on the data card with the name of the male (if you have several) and mark the date the bunnies are to be born – 30 days later. Rabbits give birth 28 – 32 days after breeding.



Always take the Female to the Male's Cage. Source: Wayne Niles



When the buck falls over, they have mated. Source: Wayne Niles

young. Do this gently or you will injure the rabbit or her young. She could miscarry if you are too brutal. If you find no growing young inside, you need to breed her again. If she accepts the male, this is confirmation that she was not bred the first time.

Males that are undernourished, too fat, or too old, lose heart and become poor breeders. A male not interested in breeding must be replaced. Males should be replaced every two years even when well kept. Males represent half your stock. Find males unrelated to your rabbit population to avoid inbreeding. If the male you use is an offspring of your flock, the size and health of the bunnies it produces will be poor. Inbred rabbits are weak, small, and easily fall ill. Always look for a replacement male unrelated to your flock of rabbits.

How to Determine if a Doe is Pregnant

Your rabbit will give birth 30 days after breeding. Fifteen days after breeding, you can feel the babies in her abdomen. This is called **palpation**. Take the female in one hand and with the other gently palpate or squeeze her abdomen high up toward her back bone. You will feel some balls the size of marbles. These are her

What Prevents a Rabbit from Becoming Pregnant

A female will not easily become pregnant if:

- She is under weight
- The cage is too hot
- She is sick
- She is bred too soon after weaning the last litter
- She is undernourished
- She is too old (more than 3 years)

To avoid rabbits not getting bred the first time, feed them well, don't breed them too often, situate their cages out of the sun, rain, and wind, and finally, change your males every two years to keep your flock young and productive.



Palpating the Doe to check Pregnancy. Source: Larry Yarger

Care of the Nest or Kindling Box

Have a nest box for each bred female. Clean the box and wash it in Clorox to sterilize the walls and floor before reusing it. Introduce the box into her cage two or three days before she is to give birth. Around this time you will hear the doe scratching the floor trying to dig a hole to nest in. Soon after you put the nest box in, she will pull fur from her chest area to prepare the nest.

When a doe pulls her fur, she will be kindling that day or the next. Some poor quality does do not use the nest box and give birth on the cage floor. Such does you must get rid of. Don't disturb the doe while kindling. When she is finished she will exit the box. Then you must count the bunnies and remove those stillborn. Mark the date and number of live bunnies born on the data card. If the nest does not have much fur, add from a stock you keep on hand for that purpose. If ants are a problem, powder the nest with insecticide or set the cage legs in cans of oil. Ants are the most danger to newborn bunnies.



Keep extra Fur on Hand for Nest Boxes. Source: Wayne Niles

The number of bunnies born is a characteristic of the breed. Some breeds regularly produce 4 to 6 bunnies, others 6 to 12. Undernourished does produce fewer young as do does subjected to stress. Stress means they were too hot, too cold, too hungry, too thirsty, or made to suffer in some manner.

If you have several producing rabbits, breed them on the same day so they kindle the same day. That way if one produces eight bunnies, while the other only four, you can balance the 'load' by give two from the litter of eight to the litter of four. This way they may all be weaned successfully.

How Rabbits Nurse Their Young

You will rarely see a rabbit nurse their young. In the wild, females minimize the time they are in or around their nests. Rabbits nurse briefly to reduce the possibility of predators finding the nest. Rabbit milk is highly concentrated so the babies need not drink a lot for them to grow quickly. The best way to see if a doe is nursing is by feeling that the bellies of the bunnies are full and they are growing. You cannot force a mother to nurse. If all the bunnies die, give the female one more chance. Often when a doe does not nurse, it is your fault for not feeding her adequately or due to some other stress. A nursing doe needs much more feed and plenty of water than she normally does. She will more likely wean all her bunnies if you feed her concentrates in addition to her normal forage. Rabbits normally loose one or two of their young unless they are well fed. Rabbits fed vegetative matter only generally do not wean all the bunnies successfully; some die.

When the Bunnies are Ready to be Weaned

Remove the nest box when all the bunnies can get out on their own. The higher the door on the nest, the longer it will take for them to be able to get out. Set the door high enough so they stay in 3 weeks. One of the highest losses of bunnies is when they get out of the nesting box too young and fall out of a cage not made to handle such small bunnies.

Bunnies should be weaned by 4 to 8 weeks. At that point they should be moved to another cage to give the mother a rest. By 3 weeks of age they can begin eating vegetative matter. You can breed the mother the same day you wean the bunnies. Some producers breed her when the bunnies are 6 weeks old and wean the bunnies at 8 weeks. Thus the bunnies are possibly nursing the same time the mother is pregnant. A doe under such conditions must be very well fed so not to miscarry.



Six weaning rabbits. Source: Wayne Niles

At weaning, select a particularly strong doe from among the young bunnies to replace the mother the next year. Always select the strongest, fastest growing bunnies to replace and improve your producing stock. You can replace your female stock with your own production but you must always replace your male with a stock unrelated to yours to avoid inbreeding.

Young weaned bunnies may grow together in the same cage until they are 5 months old. After that, they must be separated as the bucks will become sexually active. They will fight each other and mate with their siblings. You should eat or sell them before they reach that age.

Eat or Sell Poor Performing Females

Some does are not good mothers. These do not use the nest box or have lots of still born young. Such rabbits should be sold for meat. Do not sell them to someone wishing to raise rabbits. Other rabbits may be difficult to impregnate. If you breed a rabbit several times and it never gets pregnant, you should sell or eat it. Others may not be good at nursing their young. They consistently have six to eight babies but most die before reaching weaning age. Again, such mothers should not be kept.

These problems are sometimes the owner's and not the rabbits' fault. If several of your rabbits have difficulty getting pregnant or nursing their young, the problem could be poor management such as poor quality feed, insufficient feed, unbalanced nutrition, lack of water, excessive heat and so on. **Remember, a pregnant or nursing doe needs much more feed than the others.**

RABBIT DISEASES

Well cared for rabbits are almost never sick. Chickens and other domesticated animals have far more disease problems in contrast to rabbits. When a rabbit becomes ill, it is a sign that it has been stressed or mismanaged. Causes of disease are:

- Insufficient feed or water
- Poor quality feed, or lack of variety in feed
- Poor cage construction exposing them to heat, wind, rain, rats or dogs
- Poor cage sanitation; infrequent cage cleaning
- Over production – bred too frequently without adequate nutrition or rest periods

How do you know when a rabbit is sick? The first sign is when it stops eating. Another sign is when the rabbit acts depressed and does not move around the cage much. You should examine the rabbit to see what the problem is. Often it's an infection of the foot or teat or other body part. An infection will give the rabbit a fever and it will feel hotter than usual.

When a rabbit is sick, separate it from the others so the disease does not spread. If the problem is indeed an infection, give it **ampicillin** or **penicillin**. You can put the antibiotic in its drinking water or in the feed concentrate. Give just a small amount. A 500 mg pill should be enough for six doses, put a little in the water each day.

Ear mites are a common problem in rabbits. Ear mites are like tiny spiders that live on secretions in the ear. The ear fills with a hard crusty material and the rabbit is constantly shaking its head. Ear mites are easy to get rid of. Pour a tiny amount of cooking oil down each ear and hold the rabbits head a while to help the oil soak in. Oil smothers the mites. In a day or two the ears will be clean.

Other than ear mites or infections, most other causes of rabbit illness or death are from poor care. If you find dead weaned bunnies in a cage you probably have not been feeding them well or they lack water. Rabbits are not tolerant of negligence. To succeed with rabbits you have to be a good manager.

DRESSING RABBITS

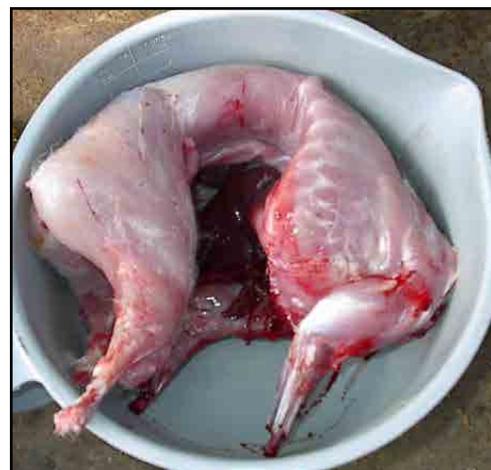
Rabbits can be easily and humanely killed with a karate chop to the neck. Hold them by the back feet and hit the back of the neck with the side of your hand. This will break the neck and spinal cord instantly. Then suspend the rabbit by its hind legs for skinning and cleaning with its belly facing towards you.



Source: Larry Yarger

Begin skinning by cutting the skin around each foot and pulling down. Cut carefully around the anus until it is completely free of the skin and supporting tissues. Continue to cut the skin in a line down to the neck then pull and remove all the skin like a shirt. Cut the skin away from the front paws to remove it completely.

Next cut open the abdomen beginning near the anus cutting down to the chest. Remove the intestines, lungs, heart, and liver. Be careful not to rupture the gall bladder. This will ruin the meat. Once you have removed the guts, remove the head and legs leaving only good meat. The rabbit is ready to be cooked. Rabbits can be prepared as you would chicken.



Source: Wayne Niles

KEEPING RABBITS TEACHES GOOD MANAGEMENT

Good Management Requires Effort and Discipline

Rabbits take more care than any other animal. But they can also produce more meat in a year than any other animal. To be a good rabbit producer there are things you must do every day, every week, and every month.



Always Feed PLENTY of Fresh Greens.
Source: Wayne Niles

Every Morning

Each morning you must change the feed and water in each cage. Remove the old, dry feed, and replace with fresh. Throw out the stale water and replace it with fresh. Then clean the cages. Remove scraps and trampled feed. Rabbits are clean animals and always relieve themselves in the same corner of the cage. If trash accumulates in the cage, their waste will not fall through the floor.

If you delegate rabbit care to a child you will probably not succeed in raising rabbits because children lack the discipline to care for them. Care of the cages each morning should be done by an adult. During these operations you should notice the health of the bunnies and the rabbits and take actions as needed.

Every Evening

Every evening give them more feed. Do not remove that which remains from the morning. Remember rabbits eat more at night than during the day. **Make sure they have fresh water also.**

Every Week

Once a week you need to clean below the cages to remove all waste that has accumulated. This is excellent material for composting or adding directly to the garden. Do not allow waste to accumulate below the cages for more than a week or the area will begin to smell and breed flies. Once a week it is good to wash all waterers with soap or bleach to kill algae that may be growing in them.

Production Records

A good manager keeps careful production records. You should make notes of the date bred, offspring born, offspring weaned and name of male parent of each litter. The parent lines of the mother rabbits should be known to prevent inbreeding. Each mother rabbit kept for production should have a name or identification number. There are ways also to mark



Keep Good Records! Record every mating, birth and weaning. Source: Wayne Niles

your rabbits. Easiest is to cut a notch in an ear. Alternatively you can tattoo their ears with a needle and ink. You don't have to mark them, in which case you should be able to recognize them by sight.

Record Card for a Female Producer:

Below is a typical record sheet (data card) for rabbit production:

Name: White		DOB: 8 Sep 2012		Father: Grey White		Mother: Black eyes	
Name of Male	Date Bred	Date Gave Birth	Number of living offspring	Weaned			
				Date weaned	# (Total)	Remareks	# Females
Brown	10 June	11 July	6	30 August	5		2
Brown	30 August	28 September	7	15 November	6	treated young for ear mites	4
Brown	15 November	Open					
Brown	30 November	30 December	6	15 February	6		3

When you breed a rabbit, write the date and name of the male. If she becomes pregnant, write the date she gives birth and the number of live babies. When they are weaned, note the date, quantity weaned, and number of females. All this information helps you manage your production. If you forget the date you bred the rabbit, you may forget to put in a nest box and the babies will be born in the cage and likely lost. With these records you can easily see which female produces the most young, is most consistently pregnant and is a good nursing and weaning mother. ***Such a mother you want to keep as well as her best daughters.*** On the other hand these records help you note the poor mothers that produce few live young, are difficult to get pregnant and are poor at nursing and weaning.

Folks Who Can Raise Rabbits Succeed In Other Endeavors

Not everyone has the diligence to successfully raise rabbits. Those who can are more likely to succeed in other things they try to do. Raising rabbits requires discipline and good management practices in several areas:

- **Management of the environment:** Cleaning in and around cages
- **Management of nutrition:** supplying an adequate and wholesome diet for the rabbits
- **Management of health:** watching for disease and responding appropriately to it.
- **Management of reproduction:** breeding the rabbits to maintain a steady supply of bunnies.
- **Management of genetics:** seeking males unrelated to the flock to avoid inbreeding.

Anyone who can perform these management skills well, without cutting corners will likely succeed in raising rabbits. His or her family will never lack for wholesome meat to eat!

APPENDIX I

Some Common Rabbit Forages

Some Common Rabbit Forages		
Scientific Name(s)	Common Name(s)	Plant Type (Part Fed)
<i>Amaranthus retroflexus</i>	Red-root pigweed	Forb weed (leaves, stems)
<i>Amaranthus spinosus</i>	Spiny amaranth	Forb weed (leaves, stems)
<i>Ananas comosus</i>	Pineapple	Forb (fruit cores)
<i>Arachis hypogaea</i>	Peanut, groundnut	Forb legume (leaves, stem, seed cake)
<i>Arachis pintoii</i>		
<i>A. glabrata</i>	Forage peanut, perennial peanut	Forb legume (leaves, stem)
<i>Avena spp.</i>	Oats	Grass (stalk, leaves, grain)
<i>Beta vulgaris subsp. cicla var. flavescens</i>	Chard, Swiss Chard	Forb (leaves)
<i>Beta vulgaris subsp. vulgaris</i>	Beet	Root (root, leaves)
<i>Bidens pilosa, B. alba, B. bipinnata</i>	Spanish needles	Forb weed (leaves, stems)
<i>Boehmeria nivea</i>	Ramie	Forb (leaves)
<i>Brassica napus var. napus</i>	Rape, Canola	Forb (leaves, seed meal)
<i>Brassica spp.</i>	Turnip, cabbage, cauliflower, kale, mustard	Forb (leaves, root, stems, flowers)
<i>Cajanus cajan</i>	Pigeon pea	Shrub legume (leaves, pods)
<i>Calliandra calothyrsus</i>	Calliandra	Tree legume (leaves)
<i>Canavalia ensiformis</i>	Jack bean	Forb legume (leaves)
<i>Canavalia gladiata</i>	Sword bean	Forb legume (leaves)
<i>Carica papaya</i>	Papaya	Tree (ripe fruit, leaves)
<i>Carthamus tinctorius</i>	Safflower	Forb (leaves, stem)
<i>Centrosema pubescens</i>	Centro	Forb legume vine (leaves, stems)
<i>Clitoria ternatea</i>	Butterfly pea	Forb, legume (leaves)
<i>Cynodon dactylon var. dactylon</i>	Bermuda or Bahama Grass	Grass (leaves, stems)
<i>Daucus carota</i>	Carrot	Root (root, leaves)
<i>Diphysa americana</i>	Guachipilín	Tree (leaves)
<i>Erythrina berteroana</i>	Coral-bean, Pito	Tree (leaves)
<i>Fagopyrum esculentum</i>	Buckwheat	Forb (leaves, grain)
<i>Gliricidia sepium</i>	Quick stick, Madre de cacao	Tree legume (leaves)
<i>Glycine max</i>	Soybean, soya	Forb legume (leaves, pods, grain, meal, seed cake)
<i>Gossypium spp.</i>	Cotton	Shrub (seed meal)
<i>Guazuma ulmifolia</i>	Guácimo	Tree (leaves)
<i>Helianthus annuus</i>	Sunflower	Forb (grain, seed cake)
<i>Hibiscus rosa-sinensis</i>	Chinese hibiscus	Shrub (leaves)
<i>Hordeum vulgare subsp. vulgare</i>	Barley	Grass (grain)
<i>Ipomoea aquatica</i>	Kang kong, water spinach	Forb crop (leaves, stems)
<i>Ipomoea batatas</i>	Sweet potato	Forb vine (leaves, stem)
<i>Lactuca sativa</i>	Lettuce	Forb crop (leaves)
<i>Leucaena diversifolia</i>	Acid tolerant Ipil Ipil	Tree legume (leaves) – feed only 10% of diet

Some Common Rabbit Forages

Scientific Name(s)	Common Name(s)	Plant Type (Part Fed)
<i>Leucaena leucocephala</i>	Leucina, Ipil Ipil	Tree legume (leaves) – feed only 10% of diet
<i>Malus domestica</i>	Apple	Tree (fruit – NOT seeds)
<i>Mangifera indica</i>	Mango	Tree (leaves, ripe fruit)
Many species	Palm	Tree (leaves, palm kernel cake)
Many species	Vetch	Forb legume (leaves, stem)
Many species	Clover	Forb legume (leaves, stems, flowers)
<i>Medicago sativa subsp. sativa</i>	Alfalfa	Forb legume (leaves, stems)
<i>Melicoccus bijugatus</i>	Kenép, Spanish lime	Tree (ripe fruit)
<i>Moringa oleifera</i>	Moringa, Drumstick Tree	Tree (leaves, flowers)
<i>Morus spp.</i>	Mulberry	Tree (leaves, fruit)
<i>Mucuna pruriens</i>	Velvet bean	Forb legume vine (leaves)
<i>Musa x paradisiaca</i>		
<i>M. acuminata</i>	Banana, Plantain	Forb (leaves, fruit w/ peel)
<i>Oryza sativa</i>	Rice	Grass (leaves, stalk, grain, meal, bran)
<i>Pastinaca sativa subsp. sativa</i>	Parsnip	Root (leaves, root)
<i>Pennisetum purpureum</i>	Napier, elephant grass	Grass (leaves, stalk)
<i>Phaseolus vulgaris</i>	Snap or green beans	Forb legume (leaves, pods)
<i>Pisum sativum var. sativum</i>	Pea, Garden Pea	Forb legume (leaves, pods)
<i>Pueraria phaseoloides var. phaseoloides</i> , <i>P. phaseoloides var. javanica</i>	Tropical kudzu	Forb legume vine (leaves, stems)
<i>Quercus spp.</i>	Oak	Tree (leaves)
<i>Robinia pseudoacacia</i>	Black locust	Tree legume (leaves)
<i>Saccharum officinarum</i>	Sugarcane	Grass (leaves, stalk)
<i>Salix spp.</i>	Willow	Tree (leaves)
<i>Sassafras albidum</i>	Sassafras	Tree (bark)
<i>Secale cereal subsp. cereal</i>	Rye	Grass (leaves, stalk, grain)
<i>Senna tora</i>	Sickle senna	Tree legume (leaves, pods)
<i>Setaria italic</i> , <i>Echinochloa esculenta</i> , <i>Pennisetum glaucum</i> , <i>Panicum miliaceum subsp. miliaceum</i>	Millet, foxtail or Italian, Millet, Japanese Millet, pearl, Millet, proso	Grass (leaves, grain, meal, bran)
<i>Sorghum bicolor</i>	Sorghum	Grass (leaves, grain, meal, bran)
<i>Stylosanthes spp.</i>	Stylo	Forb legume (leaves, stems)
<i>Symphytum officinale</i>	Comfrey, common comfrey	Forb (leaves)
<i>Talinum triangulare</i>	Talinum, Philippine spinach	Forb (leaves, stem)
<i>Taraxacum officinale</i>	Dandelion	Forb (leaves, petiole, flower)
<i>Telfairia occidentalis</i>	Telfairia, fluted gourd, oysternut	Forb vine (leaves, stem)
<i>Tithonia rotundifolia</i>	Mexican sunflower	Forb (leaves)
<i>Trichantera gigantea</i>	Nacedero	Tree (leaves)
<i>Triticum aestivum</i>	Wheat	Grass (straw, leaves, grain)
<i>Urochloa maxima</i>	Guinea grass	Grass (leaves)
<i>Urochloa mutica</i>	Para Grass	Grass (leaves)
<i>Vigna radiata</i>	Mung bean	Forb legume (leaves, pods)
<i>Vigna unguiculata</i>	Cowpea	Forb legume (leaves, pods)

Some Common Rabbit Forages

Scientific Name(s)	Common Name(s)	Plant Type (Part Fed)
<i>Zea mays</i>	Maize, corn	Grass (leaves, grain, meal, bran, sprouted grain)

In general, rabbits can safely eat any fruit, vegetable or herb that people would eat. There is some concern that due to higher sugar content in fruit, it may cause diarrhea, so it is recommended they be given in moderation and slowly over time if they're not accustomed to it.

Sprouted Grain. *At ECHO we have been experimenting with feeding sprouted maize (*Zea mays*) as a forage option for rabbits. The grain is soaked overnight in water to soften the grain and initiate germination. After 24 hours the water is drained and the grain allowed to fully germinate. With cooler temperatures, the grain doesn't always send up the cotyledon or seed leaf. However, even with just the emerging radical (root) the rabbits readily eat the grain, shoots, roots and all. The records show that the rabbits fed sprouted maize start out on a par with those fed commercial pellets, but each week draw further behind on weight gained. They are also fed forage.*

APPENDIX II

Some Plants with Toxic Factors to Consider for Rabbits

Scientific Name (s)	Common Name(s)	Observations
<i>Abrus precatorius</i>	Rosary pea, crab eye bean	All parts of plant are toxic; red/black seeds are fatal
<i>Acacia berlandieri</i>	Guajillo	All parts toxic to rabbits, although is used as forage
<i>Achillea millefolium</i>	Yarrow	May cause skin irritations
<i>Agave spp.</i>	Agave, yucca, lechuguilla	Leaves toxic
<i>Aleurites fordii</i>	Tung oil tree	All parts toxic
<i>Aloe vera</i>	Aloe, true aloe	The juice of the aloe plant is toxic, this and other species, as well
<i>Amaranthus spp.</i>	Amaranth	Leaves and stems contain oxalates; feed at moderate levels
<i>Araceae family</i>	Monstera, taro, philodendron, pothos, jack-in-the-pulpit, may apple, caladium, dieffenbachia (dumb cane), elephant's ear, anthurium, peace lily	All plants of the Araceae (arum or aroid family) are toxic. Leaves, stems, flowers and fruits carry oxalates which can be fatal in large quantities.
<i>Areca catechu</i>	Areca palm, Betel nut palm	All parts are toxic
<i>Asclepias spp. (especially A. eriocarpa)</i>	Milkweed (esp. Indian or woolly-pod milkweed)	All parts toxic; can cause "head-down" disease (paralysis); if fed dry hay, milkweed can often be found in the hay
<i>Astragalus spp.</i>	Milk vetch	All parts toxic
<i>Beta vulgaris subsp. Cicla var. flavescens</i>	Chard, Swiss Chard	Leaves contain oxalates; feed in moderate amounts
<i>Brassicaceae (mustard family)</i>	Cole crops, brassicas, mustards, crucifers	All parts mildly toxic; contain goitrogens; feed small amounts
<i>Brunfelsia spp.</i>	Yesterday, today and tomorrow	All parts toxic; some are hallucinogenic
<i>Caesalpinia gilliesii</i>	Bird of paradise	Green seeds, pods toxic
<i>Calendula officinalis</i>	Calendula, pot marigold	All parts toxic to rabbits
<i>Cannabis sativa</i>	Hemp, marijuana	Flowers, leaves, stems toxic
<i>Colocasia esculenta</i>	Taro, Dasheen	Leaves, petioles toxic (contain oxalates)
<i>Crotalaria spp.</i>	Crotalaria, rattlebox	Most <i>Crotalaria</i> spp. are toxic-the whole plant; contain pyrrolizidine alkaloids

Some Plants with Toxic Factors to Consider for Rabbits

Scientific Name (s)	Common Name(s)	Observations
<i>Dracaena spp.</i>	Dracaena	All parts toxic
<i>Euphorbia pulcherrima</i>	Poinsettia	All parts are toxic; leaves, sap are fatal
<i>Euphorbia spp.</i>	Spurge	Leaves, flowers, sap toxic
<i>Euphorbiaceae (spurge family)</i>	Candelabra cactus, pencil plant, jatropha, cassava, castor bean, crown of thorns, cypress spurge, gopher spurge	Most euphorbs (of the Euphorbiaceae or spurge family are toxic, usually with a toxic milky sap, and should be avoided
<i>Ficus spp.</i>	Laurel, fig, Indian rubber	Plants of the genus Ficus in the Moraceae or mulberry family should be avoided; they carry a toxin in the milky sap common to the family
<i>Glycine max</i>	Soy bean	Grain contains trypsin inhibitors which reduce digestibility and should be cooked before feeding
<i>Gossypium spp.</i>	Cotton	Seed meal contains gossypol; feed at 5-10% of diet
<i>Hedera helix</i>	English ivy	Leaves and berries toxic
<i>Impatiens balsamina</i>	Bush balsam, impatiens	Although edible for humans, all <i>Impatiens spp.</i> are toxic to rabbits
<i>Ipomoea violacea</i>	Morning glory	All parts toxic (though other <i>Ipomoea spp.</i> are good feed!)
<i>Jatropha curcas</i>	Jatropha, purge nut	Seeds and leaves are toxic
<i>Lantana camara</i>	lantana	All parts of lantana are toxic; the green berries are fatal
<i>Leucaena spp.</i>	Leucaena, Ipil Ipil	High mimosine concentration in leaves; feed only 10% of diet; may have depilatory affect in rabbits
<i>Liliaceae (Lily family), Alliaceae (Onion family), Amaryllidaceae (amaryllis)</i>	All bulbing plants, including onion, garlic, amaryllis, daffodil, tulip	Don't feed bulbs to rabbits
<i>Lycopersicon esculentum</i>	Tomato	Leaves, stems toxic
<i>Maclura pomifera</i>	Osage orange	Fruit (hedge apples) are toxic
<i>Malus domestica</i>	Apple	Seeds contain cyanide, but fruit is a good feed
<i>Manihot esculenta</i>	Cassava, manioc, yuca	Roots, sap toxic
<i>Melia azedarach</i>	Chinaberry tree	Fruits toxic
<i>Monstera deliciosa</i>	Ceriman, monstera	All parts toxic w/ oxalates
<i>Nandina domestica</i>	Heavenly bamboo	Leaves toxic
<i>Nerium oleander</i>	Oleander	Leaves, branches, flowers, nectar toxic (to humans, too!)
<i>Oxalis spp.</i>	Oxalis, sorrel, shamrock	Contain oxalates
<i>Pachyrhizus erosus</i>	Yam bean, Jícama	Leaves, immature pods toxic
<i>Papaver somniferum</i>	Opium poppy	Plant juices are toxic
<i>Parthenocissus quinquefolia</i>	Virginia creeper	Leaves and unripe fruit toxic
<i>Pastinaca sativa subsp. sylvestris</i>	Wild Parsnip	All parts toxic
<i>Perilla frutescens</i>	Perilla	All parts toxic to rabbits
<i>Persea americana</i>	Avocado	Leaves toxic; fruit & peel good feed

Some Plants with Toxic Factors to Consider for Rabbits

Scientific Name (s)	Common Name(s)	Observations
<i>Phaseolus spp.</i>	Dry beans, lima beans	Dry beans should be cooked before feeding to rabbits; contain trypsin inhibitors and lectins which are destroyed by heating
<i>Prunus</i>	Apricot	Seeds (pits) contain cyanide, but fruit is a good feed
<i>Prunus persica</i>	Peach	Seeds (pits), twigs, leaves contain cyanide, but fruit is a good feed
<i>Pyrus communis</i>	Pear	Seeds contain cyanide, but fruit is a good feed
<i>Quercus spp.</i>	Oaks	Leaves and acorns are toxic
<i>Rheum x hybridum</i>	Rhubarb	Leaves contain oxalates; can be fatal; feed in moderate amounts
<i>Ricinus comunis</i>	Castor (bean)	Seed and leaves toxic
<i>Robinia pseudoacacia</i>	Black locust	Bark, sprouts & foliage are toxic
<i>Rosmarinus spp.</i>	Rosemary	Leaves of some are toxic
<i>Rumex acetosa</i>	Garden sorrel	Contains oxalates
<i>Sesbania drummondii</i>	Poison bean, rattlebox	All parts toxic
<i>Sesbania punicea</i>	Red sesbania	All parts toxic
<i>Sesbania vesicaria</i>	Bladderpod	All parts toxic
<i>Solanaceae (nightshade family)</i>	Tomato, pepper, eggplant, angel trumpet, nightshade, tobacco, night-blooming jasmine, four o'clock, Jerusalem cherry	Most stems, roots, leaves and UNRIPE fruit are toxic to rabbits
<i>Sorghum bicolor</i>	Sorghum, broomcorn,	
<i>Sorghum x drummondii</i>	Sudan grass	
<i>Tagetes spp.</i>	Marigold	May cause skin irritation
<i>Tanacetum vulgare</i>	Tansy	All parts toxic
<i>Toxicodendron radicans</i> <i>Toxicodendron pubescens</i> <i>Toxicodendron diversilobum</i> <i>Toxicodendron vernix</i>	Poison ivy Eastern poison oak Western poison oak Poison sumac	All parts are toxic
<i>Trifolium hybridum</i>	Alsike clover	All parts toxic
<i>Viburnum spp.</i>	Viburnum	Berries and leaves mildly toxic
<i>Vicia fava</i>	Broad bean, fava bean	Dry beans should be cooked before feeding to rabbits; contain trypsin inhibitors and lectins which are destroyed by heating

NOTE: *Toxins occur in most feeds; the important thing is to learn the correct amount to feed without adverse effects. When trying a new plant, feed it in small amounts for several days without varying the rest of the diet to see if there are adverse responses or reactions before making it a regular part of the diet.*

Additionally, this list is not exhaustive. If you have questions about a certain plant and its toxic potential, follow the instructions above, or reach out to local experts who may know.

APPENDIX III

How to Make an Inexpensive Rabbit Hutch out of Local Materials



1) This cage is easy to make out of wood and bamboo



2) You will need 5 lbs (2.3 kg) of 12d nails 3 lbs(1.5 kg) of 10d nails and 1 lb (.5 kg) of 5d nails



3) For the front legs, cut two poles as long as you are tall



4) For the rear legs, cut two poles as high as your chin



5) Cut four poles an arm span long - two for the roof; two for the floor



6) The front of the cage is an arm and hand tall, the back is a bit shorter



7) Nail the front poles to two of the arm span poles; do the same with the two poles for the rear legs



8) Cut 7 poles an arm's length for the cross pieces



9) Nail them to the legs and space the rest evenly between the ends



10) This is what the finished floor support looks like



11) Reinforce your cage with cross pieces in the form of an "X" or "V" to the legs



12) In the back make an "X" support



13) Split bamboo to make floor laths the width of your finger



14) Begin nailing the first lath down the center of the cage (lengthwise)



15) Nail a second lath the distance of a finger width next to the first



16) Use a stick the diameter of a finger to help keep the distance between laths



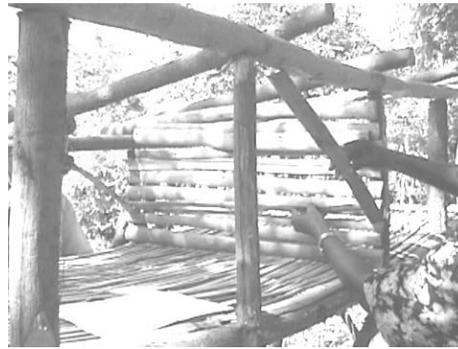
17) When the cage is finished it should be solid, flat, and have no holes large enough for a bunny leg to pass thru



18) Now divide the cage into two chambers



19) To make the manger, cut more laths the width of a finger and shorter than the width of the cage



20) Cut 3 laths long enough to go from the top to a point 2 inches above the floor on the middle wall



21) Assemble the manger on the ground using a stick for spacing the laths



22) Here is the finished manger; allow no spaces for bunnies to pass into it



23) Close the sides of the hutch with bamboo; use larger strips to fill in faster



24) Make the doors and install a plastic, sheet metal or banana leaf roof

Photos in Appendix III by Wayne Niles

Special thanks for assistance goes to Mèt Jacques Saintilus, Ewaldy, Fandieu, Madame Grimard Abel, Ms Jane Volker, and others.

Some Useful References

- The Rabbit Project Manual, a Trainer's Manual for Meat Rabbit Project Development*, by S.D. Lukefahr, Heifer Project International, 1992, 103 pp.
- The Homesteader's Guide to Raising Small Livestock*, by J.D. Belanger, Rodale Press Inc. Book Division, 1974, pp. 10-62.
- Back-Yard Rabbit Keeping in the Tropics (Agrodok Series #20)*, by J.B. Schiere & C.J. Corstiaensen, AGROMISA and CTA, the Netherlands, 2008, 74 pp.
- Raising Healthy Rabbits under Primitive Conditions*, by Dr. W.S. Bivin & Dr. W.W. King, Christian Veterinary Missions, Division of World Concern, 108 pp.
- Rabbits (in the Tropical Agriculturalist Series)*, D. Fielding & Dr. G. Matheron, CTA and MacMillan Press Ltd., 1993, 106 pp.
- Rabbit Production*, by P.R. Cheeke, N.P. Patton & G.S. Templeton, The Interstate Printers & Publishers, Inc., 1982, 328 pp.
- The Rabbit – Husbandry, Health and Production*, an on-line book published by the FAO, Food and Agriculture Organization of the UN. <http://www.fao.org/3/t1690e/t1690e.pdf>