Raising Rabbits

Rabbits are raised for show, fur, home or commercial meat production, laboratory animals, and breeding stock. People living in urban areas or on small acreages often consider raising rabbits because space requirements are minimal. Raising rabbits can be a satisfying experience as well as contributing to the family income and diet. But the following facts should be considered before starting a rabbit project.

■ Be sure there is a market for the product. There are few if any rabbit-processing plants in the Midwest, thus the family table and neighbors are the primary market. The demand for rabbit has not grown like that for poultry.

■ Rabbits require daily care.

■ Check local zoning laws and health requirements before starting a rabbitry.

■ The technology of rabbit production has not experienced the rapid advances of other livestock industries.

Choosing A Breed

The Standard of Perfection published by the American Rabbit Breeders Association lists some 31 breeds with approximately 100 different varieties. Breeds are differentiated by body type and varieties are designated by the color of the fur. The best place to buy breeding stock is from a reputable rabbit breeder.

Mature body weight is often used to classify breeds. Three classifications are available: small or dwarf breeds (3 to 4 pounds), medium breeds (9 to 12 pounds), and large or giant breeds (14 to 16 pounds). The dwarf and giant breeds are normally grown by individuals interested in participating in shows or interested strictly in the hobby aspect. Examples of these breeds are the Champagne, Chinchilla, Dutch, English Spot, Polish, Rex, Sable and Tans. Rabbits of these breeds don't have the utility value nor do they produce meat as economically as the "meat" breeds. But those not suitable for show can be processed for meat. The medium-size breeds are most often grown for home or commercial meat production. The main breeds are the Californian and the New Zealand White. The white fur fryers are worth more than colored fur fryers.

Housing and Equipment

Small rabbitries may use a variety of buildings as long as the rabbits are protected from predators, disturbances, and extreme weather conditions. The type of insulated and fan-ventilated housing used for poultry is suggested for large commercial rabbitries. It is important to consider labor efficiency when designing the hutch. A ready-made hutch can be purchased or one can be built. Hutches constructed with wood frames, and wire mesh sides, tops and floors are satisfactory. For most breeds, ½ by 1-inch welded-steel wire floor, and 1 x 2-inch wire sides and top are suitable. Wire floors make it easier to keep the hutch clean and reduce the potential for disease. Exposed wood should be covered with wire to prevent the rabbits from chewing the wood. Avoid any rough spots or loose ends of wire to prevent injury to the rabbit. Floor-to-ceiling height should be at least 18 inches (giant breeds do better with a 24-inch height), the minimum cage depth 30 inches, and the width can vary from 30 to 48 inches.

Each hutch must be equipped with feeding and watering equipment. Individual glazed-masonry feeders and waterers, or metal self-feeders which attach to the outside of the hutch, and automatic waterers, as well as creep feeders for the young bunnies, are suitable for any size rabbitry. Nest boxes are needed for the doe at the time of kindling. Good dimensions for a nest box are 18 inches deep by 12 inches wide by 14 inches high. Wire boxes with disposable liners are more sanitary than wood boxes.

Rabbits will not perform well if they are crowded. They should have at least 1 square foot of floor area for each pound of body weight. An 8- to 10-pound rabbit needs 7½ square feet of floor area. A floor space of at least 10 square feet is desirable for a breeding doe with a litter.

Breeding

Rabbits are ready to breed upon reaching maturity. The age of maturity will range from 5 months for the small breeds to 9 to 12 months for the large breeds. One buck to each 10 does is suggested as a maximum with 4 to 5 matings per week for limited use, 2 to 3 matings per week for continuous use.

Breeding difficulties may occur during temperature extremes, particularly hot weather. Houses with good insulation, fan-ventilation and an evaporative-type cooling system will improve breeding during hot weather.

The doe may be bred when the young are 6 weeks old and left with the litter until they are sold or weaned at 8 to 9 weeks of age. It depends basically on the condition of the doe. Proper management can produce five litters per year from each doe. It is best to equalize the number of bunnies between does within the first 2 days, leaving no more than 8 to 9 bunnies with a doe.

The rabbit does not exhibit an estrus cycle like other mammals. Ovulation occurs approximately 10 hours after copulation. Many successful rabbit breeders like to use an 8-hour rebreeding program. The doe is taken to the buck's pen, never vice versa, for breeding in the evening and again the following morning, then removed as soon as mating occurs.

Determining Pregnancy

Two methods are used to determine that conception has occurred. The first is called "test mating." The doe is returned to the buck's cage 14 to 18 days after the first mating. If she refuses the male, it is usually assumed that she is pregnant; but this is not a foolproof method. The best method is palpation. If the doe is pregnant, a person may feel with the thumb and fingers a series of nodules or lumps in her lower abdomen. The doe should be handled gently, using only light pressure, so that the young embryos will not be injured.

This technique takes practice and you should start learning the "feel" by first palpating late in the gestation period. Succeeding palpations can be earlier and earlier in the gestation period so that proficiency is developed. Rebreeding can be done if pregnancy has not occurred.

Kindling

The average gestation period (time from breeding until birth of young) is 31 to 32 days. Sanitized nest boxes should be placed in the hutch between the 27th and 29th day after breeding.

Since the young rabbits are born without fur, they require adequate provision for warmth within the nest box. Provide 6 to 8 inches of nesting material such as straw during cold weather; 2 or 3 inches during hot weather. Just prior to kindling, the doe will use her hair to line the nest. It is important to watch the doe to see that she makes her nest in the nest box; particularly a first-litter doe.

Don't disturb the doe immediately after kindling, but examine the litter within 24 hours and remove any deformed or dead bunnies. Remove the nest box from the hutch when the bunnies are approximately 3 weeks old or when the youngsters are spending all of the time outside the box. Babies can be weaned at 6 to 8 weeks of age.

Feeding and Watering

An adequate supply of clean, fresh water, feed, and salt spools should be available to the rabbits at all times. The condition of the doe, buck, or young bunnies will determine how much feed to give at each feeding. Although you may use self-feeders, all the feed should be eaten between feedings. The average doe will consume 4 to 6 ounces of rabbit pellets per day. The feed for each rabbit should be weighed and recorded so the feeding schedule can be tailored to individual rabbits.

The rabbit is a herbivorous animal; it subsists entirely on materials of plant origin. The domestic rabbit must get all its nutrient requirements from the feed you place in the hutch. Commercial rabbit pellets are recommended, particularly for small rabbitries. Commercial feed usually meets all nutritional requirements. The use of hay is questionable as most rabbit pellets contain varying amounts of dehydrated alfalfa. Some rabbit growers use high-quality legume hay, such as alfalfa, for conditioning show rabbits or to overcome some types of digestive problems. The hay should be placed in a rack so that the rabbits cannot soil it.

Exact nutritional requirements for rabbits have not been worked out as accurately as for other meat animals. But two things are evident: For best results, the ration must be complete and balanced; and dietary requirements vary with the sex and state of development of the individual rabbit (Table 1). A complete ration is one that contains sufficient protein (amino acids), carbohydrates, fats, minerals, and vitamins for maintenance, growth,

TABLE 1. NUTRIENT REQUIREMENTS OF RABBITS[a]

Nutrient	Growth	Maintenance	Gestation	Lactation
Crude protein (%)	16	12	15	17
Digestible energy (kcal)	2500	2100	2500	2500
TDN (%)	65	55	58	70
Crude fiber (%)[b]	10-12	14	10-12	10-12
Fat (%)[b]	2	2	2	2
Calcium (%)	0.4	c	0.45	0.75
Phosphorous (%)	0.22	c	0.37	0.5

[a]Consult publication listed at the bottom of Table 2.
[b]May not be minimum but known to be adequate.
[c]Quantitation requirement not determined, but dietary need demonstrated.

gestation, and lactation. The analysis of the feed, which shows the protein content, presence of medication, etc. of the pellets under consideration, will be on the tag or printed on the bag.

For does and bucks being held in a maintenance condition, a 12 percent protein ration containing a high percentage of good alfalfa hay and a minimum of pellets is adequate. Prior to use in the breeding pens both does and bucks should be placed on at least a 15 percent protein complete ration. This ration should be continued with the bucks as long as they are in the breeding pens and with the does throughout the entire gestation period. The ration should contain higher than usual amounts of vitamins A, D, E, and K.

The most important ration is the one given to the lactating or nursing doe. The protein must be increased to 17 percent and the ration must be highly digestible with a minimum of fiber. A common practice is to use a high-protein, high-vitamin, high-mineral concentrate at the rate of one tablespoon per rabbit per day.

The use of a creep feeder and a creep-feed ration is necessary for rapid growth of bunnies. A high-protein, as much as 20 percent, high-energy creep feed will supplement the doe's milk and lessen the drain on her body. The ration for bunnies being readied for market should contain no less than 16 percent protein, with the carbohydrate and fat content increased during the last 1 to 2 weeks prior to market. Examples of adequate diets for commercial production are shown in Table 2.

Rabbit pellets may contain medication. Most medications will have a withdrawal time indicating the number of days prior to slaughter to stop using medicated feed. Failure to observe this withdrawal time can result in condemnation and loss of money and can create health problems for the people eating the meat. Medicated feeds are no substitute for adequate sanitation and proper management. Feeding a medicated feed 5 days prior to and after the return from a show will tend to overcome the stress of the show. Read about the medication and its purpose, use it only for that purpose and strictly according to directions.

TABLE 2. Examples of Adequate Diets for Commercial Production*

Kind of animal	Ingredients	% of total diet[a]
Growth, 0.5 to 4 kg	Alfalfa hay	50
	Corn, grain	23.5
	Barley, grain	11
	Wheat bran	5
	Soybean meal	10
	Salt	0.5
Maintenance, does and bucks, avg. 4.5 kg	Clover hay	70
	Oats, grain	29.5
	Salt	0.5
Pregnant does, avg. 4.5 kg	Alfalfa hay	50
	Oats, grain	45.5
	Soybean meal	4
	Salt	0.5
Lactating does, avg. 4.5 kg	Alfafa hay	40
	Wheat, grain	25
	Sorghum, grain	22.5
	Soybean meal	12
	Salt	0.5

*Nutrient Requirements of Rabbits, Publication ISBN 0-309-02607-5, Committee on Animal Nutrition, National Academy of Sciences-National Research Council.

[a]Composition given on as-fed basis.

Disease

The control of diseases in the rabbitry should be a matter of prevention rather than cure. Start by establishing these basic animal health guidelines.

- Buy healthy foundation stock only from reputable individuals.
- Follow the feeding program outlined by the manufacturer.
- Provide an environment for the rabbits which will keep stress at a minimum.
- Develop and actively enforce a sanitation program.
- Isolate an area where sick rabbits or rabbits brought to the rabbitry can be kept and observed for a period of time.
- The prompt, accurate diagnosis of a disease is necessary for effective treatment.

Marketing

Before raising rabbits, you should be sure there is a market for the product. A family can eat the meat from a small rabbitry, but larger rabbitries require a consistent, year-round market to be successful. A lack of state- and federal-inspected plants in the Midwest is a major obstacle to commercial production of rabbits. Growers must realize that processors cannot survive unless they have a continual, reliable supply of live bunnies to process.

Follow these steps in home processing of rabbits:

- Before killing the rabbit, stun it by lightly striking it behind the ears with a stick while holding the rabbit by the hind legs.
- Hang carcass on a hook by one leg, and remove head immediately to permit good bleeding.
- Remove the tail and cut off the feet from the free legs at the hock and knee joints.

■ Slit the skin on the inside of hind legs to the root of the tail, and remove skin by slipping it off "wrong side out."
■ Remove entrails and the gall bladder, but leave the liver in place.
■ Remove the other hind leg by severing at the hock.
■ Rinse and cool the carcass in cool water for not more than 1 hour.
■ Cut meat into pieces. Refrigerate or place in wrap or container for storage in freezer.

Records

Some form of record keeping is necessary for a successful operation. In order to keep records, a means of identification such as tattooing numbers in the ears is necessary.

The number and types of records will vary. Information they contain must be accurate for the records to be useful. It appears that a minimum of two to three separate records are needed, namely the Hutch or Doe record and Buck Breeding record. You'll need a pedigree record if interested in show animals or the sale of breeding stock.

Shows and Exhibiting

For many rabbit producers exhibiting rabbits in the various fairs and shows is initially an interesting adjunct to the overall project. The 4-H member, the hobbyist, the breeder, and the commercial rabbit grower can see how their rabbits compare with those from other producers.

Keep these guidelines in mind when exhibiting rabbits.
■ A rabbit show is similar to a beauty contest. Breed and variety characteristics, fur condition, individual health, and the ability to "show off" for the judge are qualities critical to high placings.
■ Study the Standard of Perfection to learn the proper breed type and variety markings.
■ Study the show premium list so that the rabbit is properly entered. Most shows have breed, age, and sex groupings. In meat or fryer classes, breed and variety characteristics are not as important as fleshing, condition, and uniformity within the entry.
■ Proper identification serves as age verification and alleviates ownership problems.
■ Rabbits which will be shown should be handled frequently so that they will show off to advantage on the show bench.
■ Make or purchase crates or cages for transporting the rabbits to shows.

Budgets for Commercial Rabbit Meat Production

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The following budgets show investments, income, expenses, and returns for selected herd sizes. Use these data as guidelines in developing your own budgets.

LOW INVESTMENT
(2 bucks and 10 does)

A. INCOME

1. Bunnies: 273 bunnies - 3 replacement does = 270 bunnies sold X 4 lb/bunny X 75¢/lb	$810.00
2. Culls: 2 does X 8 lb/doe X 30¢/lb	4.80
3. Manure: 12 breeders X 100 lb/breeder X $3/cwt	36.00
TOTAL	$850.80

B. INVESTMENT

1. Building - use an existing shed

2. Equipment	
12 individual wire hutches - 30” x 36” x 18”, @$20	$240.00
12 individual metal feeders, @$5	60.00
12 individual metal waterers, @$3	36.00
8 nest boxes, @$5	40.00
1 used fan (20’’-24”)	27.00
Extra insulation	35.00
TOTAL	$438.00

C. EXPENSES

1. Feed: (10 does X 4 litters/year X 7 bunnies/litter) - (1 litter or 7 bunnies due to mortality) = 273 bunnies X 16 lb/bunny X 12¢/lb	$524.16
2. Variable costs	124.50
3. Interest	
a. Equipment: $\frac{\$438}{2}$ X 12%	26.28
b. Breeding stock: 10 does X $20 + 2 bucks X $20 = $240 X 12%	28.80
4. Repairs: 4% X $438	$17.52
TOTAL	$721.26

D. RETURN TO LABOR AND MANAGEMENT $129.54

MIDDLE INVESTMENT
(8 bucks and 100 does)

A. INCOME	
1. Bunnies: 3,094 bunnies - 3 replacement does = 3,061 bunnies sold X 4 lb/bunny X 80¢/lb	$9,795.20
2. Culls: 3 bucks + 25 does = 28 culls X 8 1b/cull X 30¢/lb	67.20
3. Manure: 108 breeders X 100 lb/breeder X $3/cwt	324.00
TOTAL	$10,186.40
B. INVESTMENT	
1. Building - remodel existing shed	$1,200.00
2. Equipment	
120 individual wire hutches - 30” x 36’’ x 18’’, @$20	2.400.00
120 individual metal feeders, @$5	600.00
Automatic watering system, individual valve each hutch	375.00
100 nest boxes for kindling, @$5	500.00
1 electric fan	35.00
Insulation and wiring	200.00
TOTAL	$5,310.00
C. EXPENSES	
1. Feed: (100 does X 4.5 litters/year X 7 bunnies/litter) - 8 litters or 56 bunnies due to mortality) = 3,094 bunnies X 16 lb/bunny X 12¢/lb	$5,940.48
2. Variable costs	588.00
3. Interest	
a. Buildings: $\frac{\$1.200}{2}$ X 12%	72.00
b. Equipment: $\frac{\$4,110}{2}$ X 12%	246.60
c. Breeders: 100 does X $20 + 8 bucks X $20 = $2,160 X 12%	259.20
d. Variable costs: $\frac{\$588}{2}$ X 12%	35.28
4. Repairs: 4% X $5,310 (buildings & equipment)	212.40
5. Taxes and insurance	37.35
TOTAL	$7,391.31
D. RETURN TO LABOR AND MANAGEMENT	$2,795.09

HIGH INVESTMENT

(25 bucks and 200 does)

A. INCOME	
1. Bunnies: 9,688 bunnies - 67 replacement does = 9,621 bunnies sold X 4 lb/bunny X 80¢/lb	$30,787.20
2. Culls: 8 bucks + 51 does = 59 culls X 8 lb/cull X 30¢/lb	141.60
3. Manure: 225 breeders X 100 lb/breeder X $3/cwt	675.00
TOTAL	$31,603.80
B. INVESTMENT	
1. Building	
36' X 120' steel pole barn = 4320 sq. ft. X $3.50/sq. ft.	$15,120.00
Site preparation	1,000.00
Form materials	1,000.00
Concrete (25 yards @$45)	1,125.00
Electric wiring, equipment, etc.	1,500.00
Ventilation system	2,300.00
Insulation	2,700.00
Labor, @$l/sq. ft.	4,320.00
TOTAL	$29,065.00
2. Equipment	
336 individual pens, @$15	$5,040.00
336 individual feeders, @$5	1,680.00
50 creep feeders, @$6	300.00
Watering system	700.00
TOTAL	$7,720.00
C. EXPENSES	
1. Feed: (200 does X 7 litters/doe/year X 7 bunnies/ litter) - (16 litters or 112 bunnies due to mortality) = 9,688 bunnies X 16 lb/bunny X 12¢/lb	$18,600.96
2. Variable costs	1,620.00
3. Interest	
a. Building: $\frac{\$29.065}{2}$ X 12%	1,743.90
b. Equipment: $\frac{\$7,720}{2}$ X 12%	$463.20
c. Breeders: 200 does X $20 + 25 bucks X $20 = $4,500 X 12%	540.00
d. Variable costs $\frac{\$1,620}{2}$ X 12%	97.20
4. Repairs: 4% X $36,785 (building & equipment)	1,471.40
5. Taxes and insurance	206.43
TOTAL	$24,743.09
D RETURN TO LABOR AND MANAGEMENT	$6,860.70

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Correspondence Course

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