
AGRICULTURAL ALTERNATIVES

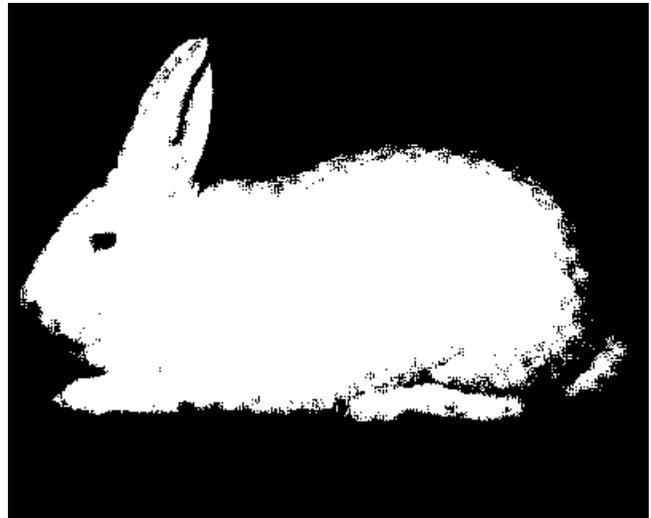
Rabbit Production

Rabbit farming has grown from raising a few rabbits for family consumption to large commercial operations with hundreds of rabbits. Approximately 200,000 producers market 6 to 8 million rabbits annually in the United States, where 8 to 10 million pounds of rabbit meat are consumed each year. Laboratories use nearly 600,000 rabbits a year for medical experiments and new product testing. On the international market, nearly 10,000 tons of Angora wool are consumed annually.

Many breeds of rabbits are produced commercially in this country. Some of Pennsylvania's most popular breeds are listed in Table 1. Rabbits are classified according to their weight or hair. The weight categories are small (3 to 4 pounds), medium (9 to 12 pounds), and large (14 to 16 pounds). For meat production, medium-weight New Zealand Whites are best, followed by Californians. For laboratory use, the breed will depend on the specifications of the customer. Angora rabbits are the only breed used for wool production.

The typical part-time enterprise consists of 50 to 100 rabbits. A full-time enterprise should have at least 600 females (does) and 60 males (bucks). Each doe produces 25 to 50 live rabbits a year, which will yield 125 to 250 pounds of meat. Angora rabbits produce 8 to 10 inches, or 12 to 16 ounces, of wool per year.

This publication was developed by the Small-scale and Part-time Farming Project at Penn State with support from the U.S. Department of Agriculture-Extension Service.



Marketing

Before you start producing rabbits, you must identify your market. Rabbits are raised not only for meat, laboratory use, breeding stock, and Angora wool, but also for their skins and for youth programs, such as 4-H and FFA.

When raising rabbits for meat, you must consider the availability of slaughtering facilities, type of packaging required, transportation cost, and potential buyers. Restaurants, wholesalers, custom meat stores, and individual buyers are the main purchasers of rabbit meat. Rabbits are typically slaughtered as fryers at 5 pounds (about 10 weeks of age). Often considered a delicacy, rabbit meat is white, fine grained, and delicately flavored. It also is high in protein and low in fat, cholesterol, sodium, and calories.

Laboratory rabbit production has the potential to be a very profitable enterprise, but the requirements for entering the market make it difficult to become established. When producing for laboratories, hospitals, or universities, you must be licensed and must meet the requirements for breed,

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age, weight, and any other characteristics that are specified. You must raise the animals under controlled conditions, and the facility must be clean, sanitary, and strictly monitored. It is recommended that you start your business by selling through an experienced supplier for a while before dealing directly with laboratories.

When marketing breeding stock, establishing a reputation for high-quality animals is critical. You can develop a good reputation by maintaining accurate and detailed health records, exhibiting your rabbits at shows, and advertising in rabbit journals and farm periodicals.

The market for Angora wool is small, and the wool is usually sold directly to individuals or organizations buying for mills. Some producers choose to spin the wool into yarn and market it directly to the general public. Angora is a high-quality wool often used to manufacture luxury garments and therapeutic clothing for people with arthritis and other joint diseases.

Table 1. Commercial rabbit breeds.

BREED	SIZE	USE	MATURE WEIGHT (LB)
Angora	medium	wool; meat	9–12
American Chinchilla	medium	fur	9–12
Californian	medium	meat	8–11
Champagne d'Argent	medium	meat	9–12
Checkered Giants	large	fur	11 +
Dutch	small	lab	3–6
English Spot	medium	meat; lab	9–13
Flemish Giants	large	meat	13 +
Himalayan	small	lab	2–6
New Zealand	medium	meat	9–12
Polish	small	lab	3–4
Rex	medium	fur	8–11
Silver Martens	medium	fur	6–10

Getting Started

Once you have researched your particular market (meat, laboratory, breeding stock, or wool), you must plan the size of your operation and determine which breed of rabbits you will raise. The smallest production unit to consider is a herd of around 20 does serviced by 2 bucks.

When purchasing your breeding stock, contact local breeders and rabbit clubs, and check advertisements in rabbit magazines and the American Rabbit Breeders Association directory. Whenever possible, you should ask to see herd health and breeding records and the production facilities. The rabbitry should be clean, well managed, and free of any health problems. Purchase rabbits that will produce large, but not huge, litters (8 to 10 kits), raise a high percentage of their offspring to slaughter age, and produce good-quality fryers.

Housing

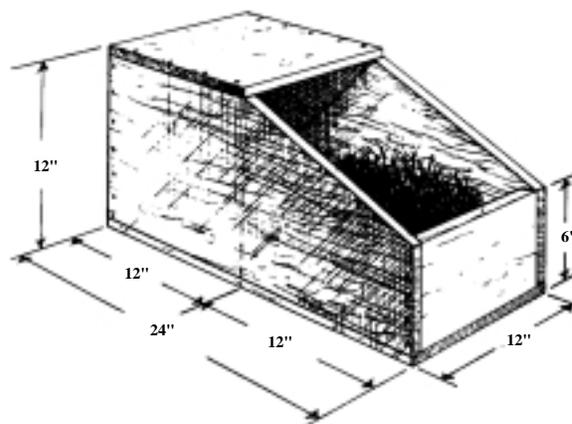
The rabbitry should be an enclosed building that has proper ventilation, lighting, heating, and cooling systems. Heating and ventilation are crucial because rabbits do not tolerate temperature extremes very well. You should maintain the herd on a year-round schedule of 12 hours each of light and darkness to keep the rabbits breeding throughout the year.

Many different types of cages can be used. However, all-metal cages help prevent unsanitary conditions that can lead to health problems. The cages should be made of 1-by-2-inch mesh for the sides and top and 1/2-by-1-inch mesh for the floor. Hanging the cages from the ceiling in single layers makes management easier for the producer. Mature bucks and does should have individual cages at least 30 by 30 inches wide and 20 inches high. Junior does, fryers, and Angora woolers (nonbreeding does and castrated bucks) may be kept in small groups in one pen. Each cage should have a feed hopper and a watering system attached to the outside of the cage.

Nest boxes should provide enough room for each doe and her litter, but should be small enough to keep the litter close together. Nest boxes can be made of nontreated wood, wire mesh, or sheet metal. The box should be enclosed except for a small opening on top for the doe to enter (shown below).

Maintaining a sanitary operation will help you prevent disease. The best waste management systems have porous pits under the cages with layers of sand, gravel, and drainage tile. Earth and concrete floors are acceptable, but require more frequent cleaning. You should have concrete walkways between the cages, and should remove accumulated manure at least twice a year. Cages and nest boxes should be cleaned and sanitized after each use, and the hair should be burned off the cages. New additions to the herd and sick animals should be kept in separate cages isolated from the rest of the herd.

Nest Box.



This simple nest box can be made from scrap lumber to fit right inside the cage.

Breeding

Medium-weight breeds (9 to 12 pounds) are able to start breeding at 6 to 7 months of age, with males maturing one month later than females. Because outward signs of heat are not always evident in mature does, you should follow a strict breeding schedule. One buck can service about 10 does, but no more than two to three times a week. Place the female in the buck's cage for breeding. Never bring the buck to the doe's cage, because she will fight to protect her territory. Mating should occur immediately, and the doe should then be returned to her cage.

The average gestation period lasts 31 to 32 days. Twenty-eight days after breeding, place a nest box in the doe's hutch. The average commercial litter consists of 8 to 10 kits. Forty-eight hours after birth, you should observe and count the kits, removing any dead animals. Remove the nest box 15 to 21 days after birth. The young should be weaned in about 30 days so that the doe will produce five litters a year.

Nutrition

Two types of nutrition programs are used for raising rabbits: hay and grain diets or commercial prebalanced pellet rations. Pellets meet all of a rabbit's nutritional requirements and are more convenient than formulating a hay and grain ration. Pregnant does and those with litters should receive all the feed they can eat in a day. Bucks and does without litters need 6 to 8 ounces of pellets a day. When raising Angora rabbits, you should avoid feeding hay because the dust will contaminate the wool and lower its quality.

Rabbits require fresh, clean water every day. Automatic watering systems offer a continuous water supply while reducing waste and contamination. A doe and her litter need 1 gallon of water a day in warm weather. Rabbits also enjoy receiving small amounts of greens as a treat.

Health Program

The most important factors for maintaining a healthy rabbit herd are cleanliness, good ventilation, close observation, and protection from sun and rain. Rabbits are susceptible to several diseases that reduce production to unprofitable levels. The respiratory disease caused by *Pasturella multocida* is responsible for decreased productivity and a high mortality rate in does. *Pasturella*-free animals can be purchased and may be a good investment.

To help prevent disease problems, do not permit visitors inside the rabbitry. They may introduce disease and cause additional stress to the animals. Isolate any sick or injured rabbit immediately. Disinfect the isolation cage and the rabbit's regular cage to avoid spreading the disease. For a good health program, you should keep accurate records on each animal. Provide each rabbit with a tattoo identification number or ear tag, and attach an identification card with health and breeding information to its hutch.

Budgeting

The following sample budget gives an example of the annual costs and returns of meat rabbit production based on 20 does and 2 bucks. This sample budget should help ensure that all costs and receipts are included in your calculations. Costs are often difficult to estimate in budget preparation because they are numerous and variable. Therefore, you should think of these budgets as a first approximation and then make appropriate adjustments using the "Your Estimate" column to reflect your specific production and resource situation.

A sample budget for laboratory rabbits has not been included because it is difficult to enter the market, and the expected costs are hard to determine. It is recommended that you carefully investigate this market and its entry requirements before making the decision to raise rabbits for laboratory research. Likewise, an Angora rabbit production budget has not been included because of the specialized nature of the market. More information on the use of livestock budgets can be found in *Agricultural Alternatives: Enterprise Budget Analysis*.

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Sample Fryer Rabbit Budget

Selling at 5 pounds and 10 weeks of age.

Based on 20 does and 2 bucks producing 5 litters per year (7 kits for sale).

Item	Quantity	Unit	Price	Amount	Your Estimate
Receipts					
Fryers	3,500	pounds	\$0.80	\$2,800.00	_____
<i>Total receipts</i>				\$2,800.00	_____
Variable costs					
Commercial feed pellets	5	tons	\$280.00	\$1,400.00	_____
Health program				\$14.00	_____
Marketing				\$100.00	_____
Supplies and miscellaneous				\$15.00	_____
<i>Total variable costs</i>				\$1,529.00	_____
Fixed costs					
Labor	200	hours	_____	_____	_____
Buildings, cages, and handling facilities				\$600.00	_____
<i>Total fixed costs</i>				\$600.00	_____
Total costs				\$2,129.00	_____
Returns					
Returns over variable costs				\$1,271.00	_____
Net returns				\$671.00	_____

Initial resource requirements

- Land: 1/8 acre
- Labor: 200 hours per year
- Capital
 - Breeding stock (20 does at \$10 and 2 bucks at \$15): \$230
 - Buildings, cages, and handling facilities: \$4,800

For More Information

Arrington, L.R. and K. C. Kelley. *Domestic Rabbit Biology and Production*. Gainesville, Fla.: University Press of Florida, 1976.

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Cheeke, P. R., N. M. Patton, S. D. Lukefahr, and J. I. McNitt. *Rabbit Production*. Sixth edition. Danville, Ill.: Interstate Printers and Publishers Inc., 1987.

Harkness, J. E. and J. E. Wagner. *The Biology and Medicine of Rabbits and Rodents*. Second edition. Philadelphia, Pa.: Lea and Febinger, 1983.

Lukefahr, S.D. *A Trainer's Manual for Meat Rabbit Production*. Little Rock, Ark.: Heifer Project International.

Perry, G.M. *The Rabbit Multiplier*. A rabbit record management system for IBM compatible computers. Information can be obtained from the Oregon State University Rabbit Research Center, Corvallis, OR 97331.

Rabbit Production. Penn State Correspondence Course 109. Independent Learning, P.O. Box 3207, 128 Mitchell Building, University Park, PA 16802.

Periodical

Countryside and Small Stock Journal
Countryside Publications, Ltd.
N. 2601 Winter Sports Road
Withee, WI 54498

Associations

American Checkered Giant Rabbit Club
542 Aspen Street NW
Toledo, OR 97391

American Chinchilla Rabbit Breeders Association
414 South Ely Street, Berteram
Cedar Rapids, IA 53403

American Dutch Rabbit Club
190 North 1st Avenue
Coal City, IL 60416

American English Spot Rabbit Club
4315 Mesa Circle
Amarillo, TX 79109

American Federation of New Zealand Rabbit Breeders
Club Road 191AB
Mine Road
Oley, PA 19547

American Himalayan Rabbit Association
Route 2 Box 232
Pomfret, MD 20675

American Rabbit Breeders Association
1925 South Main Street
Bloomington, IL 61704

Californian Rabbit Specialty Club
22162 South Hunter Road
Colton, OR 97017

Champagne D'argent Federation
1704 Heisel
Pecki, IL 61554

National Angora Rabbit Breeders Club
6688 Middlebranch NE
North Canton, OH 44721

National Federation of Flemish Giant Rabbit Breeders
233 Aultman Avenue, NW
Canton, OH 44708

National Rex Rabbit Club
8780 Fair Oaks
Tracy, CA 95376

National Silver Rabbit Club
1403 Redwig Road
Valparaiso, IN 46383

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Issued in furtherance of Cooperative Extension Work, Acts of Congress May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture and the Pennsylvania Legislature. L.F. Hood, Director of Cooperative Extension, The Pennsylvania State University.

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