

AGRICULTURAL ALTERNATIVES

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Rabbit Production

Rabbit farming has grown from raising a few rabbits for family consumption to large commercial operations with hundreds of rabbits. Investment in a rabbitry, including breeding stock, can be quite modest. Expansion is much simpler than other livestock alternatives because a large range of existing facilities can be modified for rabbits and land requirements are negligible. According to the 2002 Census of Agriculture (NASS), there were more than 4,300 farms selling almost 890,000 rabbits nationally. In Pennsylvania, 298 farms sold more than 112,000 rabbits, making it the top producer nationally.

Many breeds of rabbits are produced commercially in this country. Some of the 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.

Typical part-time enterprises consist 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.

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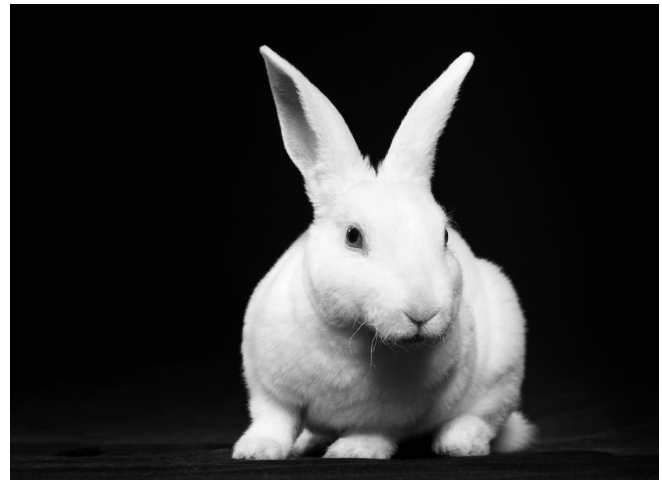


Table 1. Commercial rabbit breeds.

BREEDS	SIZE	USE	MATURE WEIGHT (LBS)
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

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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, FFA, Pennsylvania Rabbit Breeders, and American Rabbit Breeders Associations.

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. Traditionally, rabbit prices tend to be lower during the summer months because of high supply, so marketing during this time may be more challenging. 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, age, weight, and any other characteristics that are specified. You must raise the animals under controlled conditions, and the facility must be highly 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.

If you choose to market breeding stock, establishing a reputation for raising high-quality animals is critical. You can develop your reputation by maintaining accurate and detailed health records, exhibiting 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.

Getting Started

Once you have researched your particular market (meat, laboratory, breeding stock, or wool), you can then plan the size of your operation and determine which breed of rabbits to 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, ask to see herd health and breeding records and the visit 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 maturity, and produce good-quality animals.

Housing

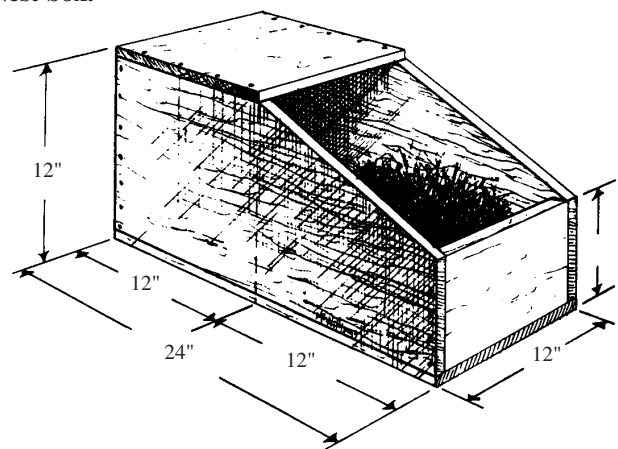
The rabbitry should be an enclosed building that has proper ventilation, lighting, heating, and cooling systems. Heating and ventilation are crucial because rabbits do not tolerate temperature extremes very well. You should maintain the herd on a year-round schedule of 12 hours each of light and darkness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

Many different types of hutches 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 0.5-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 that are at least 30 inches wide, 30 inches deep, and 20 inches high. Junior does, fryers, and Angora rabbits (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.

A nest box should be placed in the hutch prior to kindling (birth) to provide seclusion for the doe and protection for the litter. 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. During cold weather, bedding such as straw or wood shavings is also recommended. The box should be enclosed except for a small opening on top for the doe to enter (Figure 1).

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

Nest box.



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

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, especially those purchased from a wholesale market, and any sick animals should be kept in separate cages isolated from the rest of the herd until any diseases are determined or until the animal is well.

Raising worms under rabbit hutches can be successfully combined in indoor operations or outdoor operations if the climate is moderate. Worms will consume the manure and any spilled feed, which will eliminate some of the odor, waste, and labor associated with manure management while providing an additional source of income. Composted rabbit manure may also represent an income opportunity for sale to homeowners.

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 the 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 5 to 21 days after birth. The young are weaned in about 30 days, so you can expect an average of five litters annually per doe. Under proper management, a good doe will continue to produce maximum-sized litters for 2 to 3 years.

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 can 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 casual visitors inside the rabbitry. They may introduce disease and cause additional stress to the animals. Isolate any sick or injured rabbits immediately. Disinfect the isolation cage and the rabbit's regular cage to avoid spreading diseases. 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.

Regulations

All agricultural producers in Pennsylvania, including small and part-time farms, operate under Pennsylvania's Clean Streams Law. A specific part of this law is the Nutrient Management Act. There are portions of the Nutrient Management Act (Act 38) that may pertain to you depending on the mix of enterprises you have on your farm (in particular, animal operations). Because all farms are a potential source of surface or groundwater pollution, you should contact your local Soil and Water Conservation District to determine what regulations may pertain to your operation.

You should also check your local zoning regulations to make sure that your intended business activities are permitted in your location.

Risk Management

There are several risk management strategies you may want to employ for your farm. You should insure your buildings and equipment and you may also want to insure your income. Insuring your farm buildings and equipment and obtaining adequate liability coverage may be accomplished by consulting your insurance agent or broker. You can also insure income from livestock enterprises through a whole-farm protection program called AGR-Lite. To obtain AGR-Lite insurance you will need your last five years of Internal Revenue Service (IRS) Schedule F forms. AGR-Lite insurance is federally subsidized and is available from private crop insurance agents. Contact a crop insurance agent to see if this type of coverage makes sense for you.

For more information on agricultural business insurance, please see *Agricultural Alternatives: Agricultural Business Insurance*. More information on crop insurance can be found on the Pennsylvania Crop Insurance Education Web site (<http://cropins.aers.psu.edu/>).

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. Also, construction of your own pens can lower costs considerably. 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*.

Initial Resource Requirements

- Land: 1/8 acre
- Total labor: 150–200 hours per year
- Capital:
 - Breeding stock (20 does and 2 bucks at \$40 each): \$840
 - Buildings, cages, and handling facilities: \$6,000

For More Information

Arrington, L. R., and K. C. Kelley. *Domestic Rabbit Biology and Production*. Gainesville: University Press of Florida, 1977.

Cheeke, P. R. *Rabbit Feeding and Nutrition*. New York: Academic Press, 1987.

Cheeke, P. R., N. M. Patton, S. D. Lukefahr, and J. I. McNitt. *Rabbit Production*. 6th ed. Danville, Ill.: Interstate Printers and Publishers, 2000.

Harkness, J. E., and J. E. Wagner. *The Biology and Medicine of Rabbits and Rodents*. 2nd ed. Philadelphia: Lea and Febinger, 1995.

Live-In Rabbit. University Park: Penn State Media Sales.

Periodical

Countryside and Small Stock Journal. Withee, Wisc.: Countryside Publications.

Associations

American Rabbit Breeders Association
P.O. Box 426
Bloomington, IL 61702

Web Sites

Associations

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

National Club Links

http://www.iowastaterba.com/national_club_links.htm

Raising Rabbits—The Basics

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

A Rabbit Glossary of Terms

<http://islandgems.net/terms.html>

Sample Fryer Rabbit Budget

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

Selling at 5 pounds and 10 weeks of age (3,500 pounds per year).

	Quantity	Unit	Price	Amount	Your Estimate
Receipts		pound			
Variable Costs					
Commercial feed pellets	5	tons	\$440.00	\$2,200.00	_____
Health program				\$25.00	_____
Marketing				\$200.00	_____
Supplies and miscellaneous				\$50.00	_____
Interest on operating capital				\$91.00	_____
<i>Total Variable Costs</i>				\$2,566.00	_____
Fixed Costs					
Labor	150–200	hours			_____
Replacement breeding stock				\$280.00	_____
Buildings, cages, and handling facilities				\$750.00	_____
<i>Total Fixed Costs</i>				\$1,030.00	_____
Total Costs				\$3,596.00	_____
Net income					_____

Potential Income at Various Prices

Price Per Pound	Net Income
\$0.75	\$2,625
\$0.80	\$2,800
\$0.85	\$2,975
\$0.90	\$3,150
\$0.95	\$3,325
\$1.00	\$3,500
\$1.05	\$3,675
\$1.10	\$3,850
\$1.15	\$4,025
\$1.20	\$4,200
\$1.25	\$4,375
\$1.30	\$4,550
\$1.35	\$4,725
\$1.40	\$4,900
\$1.45	\$5,075
\$1.50	\$5,250

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