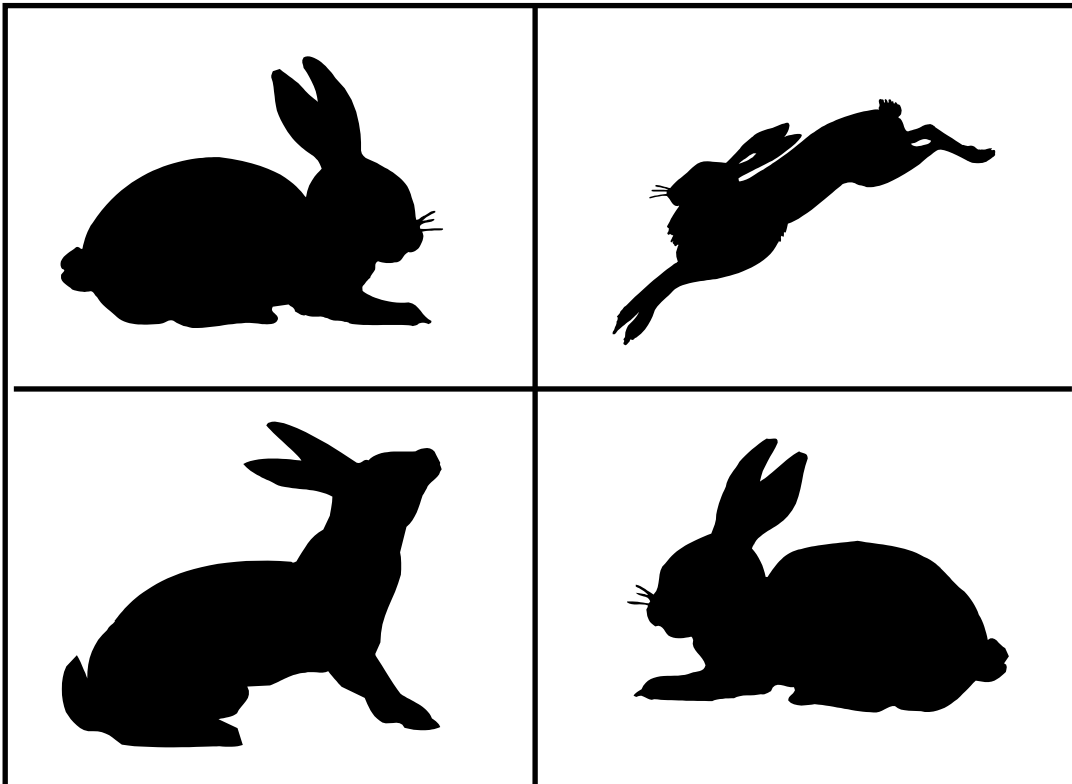


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## U.S. Rabbit Industry Profile

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## **I. Executive Summary**

### i. Rabbit Industry Groups

The rabbit industry is composed of many groups each with differing production goals. Rabbit production can be commercial, for profit, with the rabbits being used for meat, as pets and for laboratory purposes. Rabbit production can also be a hobby and the rabbits are raised for the show circuit, home consumption, pet sales or as 4H animals.

Processors and producers in the commercial meat rabbit industry group are trying to improve the supply, consistency and market outlets for rabbits. Per capita U.S. rabbit meat consumption was .02 pounds in 2000. The two most important markets for commercially produced rabbit are retail grocery stores in metropolitan markets and high-end restaurants. Increasing imports of frozen rabbit from China are competing for grocery store and restaurant markets, and winning shelf space because of their comparatively lower price.

The other commercial rabbit industry groups, laboratory and pet, have less well understood production practices and marketing channels. Neither group has a representative national organization, and both groups face pressure from animal welfare advocates about the markets for their animals. The medical research market demands specific characteristics and high health standards for rabbits, which increase the production costs for these animals. Average prices and the size of the total breeding stock for these animals are difficult to determine. Average prices for commercially bred pet rabbits are not known, though they may vary widely based on region. Annual production or sales through pet stores, are also not known. Pet rabbit breeders usually supply young, small rabbits to satisfy customer demand and may see a seasonal increase in demand for rabbits at Easter.

Hobbyists may sell or use rabbits for showing, home meat consumption, direct pet sales, or wool production. The American Rabbit Breeders Association (ARBA) sponsors 4,000 shows a year, and an annual national show can draw as many as 20,000 rabbits. Show breeders travel to shows, sell animals to other exhibitors and maintain memberships in breed specific or state clubs in addition to ARBA. Show breeders and other hobby breeders can be active in multiple markets, selling culled animals as pets, consuming their own meat rabbits and harvesting wool from long-haired breeds. Occasionally, commercial producers keep hobby herds for competitions, but industry members advocate a distinction in breeding practices for fancy animals and commercial rabbits.

### ii. Rabbit Populations

The exact number of rabbits represented by the various rabbit industry groups is unknown. Commercial rabbit industry experts believe that USDA inspected rabbit slaughter represents only twenty to twenty-five percent of the total market for rabbit meat, and total slaughter in 2001 was estimated to be around 2 million rabbits. Populations of pet rabbits are collected from consumer surveys and population figures for rabbits used in laboratory research are compiled from licensed facilities. Pet rabbit producers, wholesalers and brokers are also licensed, but the breeding stock are combined with the laboratory breeding population. Both the 4H and ARBA track participation, but not average herd sizes, and the other industry groups do not track their breeding stock. What information is available indicates that 5 million pet rabbits are owned by 2.2 million U.S. households. Laboratory use of rabbits in 2000 was more than 250,000. The 4H and Future Farmers of America (FFA) youth programs may have one million animals involved in those projects. Hobby breeders, represented by the ARBA, may raise and

show an additional 930,000 rabbits a year. The total domestic rabbit population in the U.S. in 2000 may have been nine million<sup>1</sup>.

### iii. Value of the Rabbit Industry Groups

The value of the rabbit industry is small, especially when compared to livestock production. Meat rabbit marketings were between \$7 and \$8 million in 2000, compared to \$41 billion for cattle. Retail sales of rabbit meat were between \$16 and \$20 million. The pet supply industry related to rabbits is the most valuable at \$612 million, but this is small compared to the \$75 billion owners spent on supplies for the entire U.S. pet population (APPMA, 2001). The value for the industry supporting rabbit shows is unknown, but it may be significant considering the value of overnight stays, gas and food that is consumed by the fanciers as they travel to and from shows. There is also no estimate for the value of sales of laboratory or pet rabbits, as market prices vary widely and are not reported. The U.S. fur and angora wool industries are insignificant, with most angora products imported as finished goods. Total value for the rabbit industry groups where information is available was between \$745 million and \$831 million.

### iv. Trade in Rabbits

Total U.S. rabbit meat imports in 2001 were 576 metric tons with a value of \$1.1 million and total meat imports in 2000 were 682 metric tons with a value of \$1.5. Total product imports in 2001 were worth \$2.5 million and most of the products were raw furs. The U.S. imported 111,000 live rabbits from Canada in 2001 and small numbers of live rabbits from Hungary and Czechoslovakia.

In 2001, 57 metric tons of rabbit meat with a value of \$160,000 were exported from the U.S. to the Dominican Republic, Japan and the French Pacific Islands. The U.S. exported a total of 45,000 raw and dressed furskins, with a value of \$435,000. Most of the U.S. furskins were exported to Germany. The U.S. exported 54,000 live rabbits in 2001 with a value of \$217,000 to Canada.

Rabbit Hemorrhagic Disease (RHD) has emerged as a growing concern for the rabbit industry in the U.S. following outbreaks in 2000 and 2001. Imported rabbits and rabbit products may harbor RHD. In 2001, 80 percent of imports were from countries that had experienced RHD outbreaks in the past.

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<sup>1</sup> This value should be considered an estimate of the size of the rabbit industry. Reliable production numbers for most industry groups do not exist. The USDA maintains reliable records for businesses requiring licensing under the Animal Welfare Act, but many rabbit producers are exempt from this certification.

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## **1. Purpose of the Report**

The recent emergence of Rabbit Hemorrhagic Disease (RHD) in the U.S. has highlighted the need for an overall picture of the rabbit industry. Rabbits in the U.S. are a dual purpose animal, raised as both household pets and a source of meat. Canada and Mexico also use rabbits for dual purposes, and imports of live rabbits from Canada are significant. The various rabbit industry groups are linked throughout the marketing chain and there are opportunities for rabbit producers to sell their animals in the pet, laboratory or meat markets. Rabbits are found in all 50 states and marketing channel interactions suggest that RHD could be concern to both pet owners and commercial producers.

This paper describes the various U.S. rabbit industry groups, dividing them along commercial (for profit) and hobby (not for profit) production goals. This method is intended to simplify the description of the diverse number of ways that rabbits are raised and marketed in the U.S. and is not intended to be a definitive definition of how the various rabbit industry groups are aligned.

To accomplish the goal of identifying the major industry groups and their possible relationships, the following topics are covered:

- Introduction to Domestic Rabbits
- The U.S. Rabbit Industry
- Commercial Production of Meat Rabbits
- Commercial Production of Rabbits for Laboratory and Research Markets
- Commercial Production of Rabbits for Pets
- Hobby Rabbit Breeding
- Trade in Rabbits
- Estimated Rabbit Population in the U.S.
- Estimated Economic Value of the U.S. Rabbit Industry Groups

## 2. Introduction to the Domestic Rabbit

### 2.1 The European or Old World Rabbit

While the U.S. has a number of native rabbit species, the term domesticated rabbit refers to the Old World rabbit *Oryctolagus cuniculus*. *O. cuniculus* was introduced to North America by early settlers who used the rabbits as a source of food and furs. Rabbits, hares and pikas are members of the *Leporidae* family, commonly known as lagomorphs. Native North American lagomorphs include the cottontail (*Sylvilagus audubonii*) and jack rabbits (*Lepus*). Jackrabbits are actually hares and give birth to fully furred kits with open eyes that can hop shortly after birth. Rabbits give birth to furless, deaf and blind kits that rely on their mothers milk at birth. Rabbit will be used to refer to *O. cuniculus* throughout this report. Wild rabbits are herbivorous and re-ingest waste, cecals, to retain as much nutrient value as possible from their diet. Wild rabbits do not have very long lives (less than two years) and they reproduce quickly with litters of five to six kits.

The Old World rabbit is native to Western Europe and Northwest Africa. The Old World rabbit was spread to new areas by human exploration and exists today on every continent except Antarctica. A rabbit's fur makes them well suited for cold climates and they can manage in warm regions as well. Where rabbits have no natural predators they are considered pests, since they eat agricultural crops and compete with native species for forage. Rabbits were introduced to New Zealand and Australia, where the lack of natural predators allowed their population to grow unchecked.

Rabbit domestication began when the Phoenicians reached Spain around 1000 BC. Breeding was conducted either in hutches or in walled warrens and eventually rabbit rearing became popular in cities. Rabbit meat production became relatively standardized in the late nineteenth century, and improvements continued in the twentieth century. Early advances in rabbit production flowed from the U.S. to Europe. After 1950 European production improvements advanced more quickly as demand for rabbit in the U.S. was replaced by increasing beef demand. Today, Italy and France maintain a comparatively high demand for rabbit meat, and are leaders in rabbit production.

Rabbits are susceptible to a number of diseases, including myxamatosis, tularemia, pasteurellosis, coccidiosis, enterotoxemia, encephalitozoonosis and RHD. Tularemia is a zoonoses that is often contracted when wild rabbits are hunted for game. Myxamatosis was once used by Australia to control their wild *O. cuniculus* population. Over time the rabbits developed resistance to the disease, and currently RHD is used to control the pest rabbit population in Australia and New Zealand (Fenner and Fantini, 1999). RHD was first identified in the U.S. in 2000. RHD has the potential to affect both the commercial and pet rabbit populations in the U.S.



### 3. The U.S. Rabbit Industries

The rabbit industry in the U.S. may be described according to whether rabbits are bred for profit or as a hobby. Figure 1 is a chart that organizes the rabbit industry by separating hobby breeding from commercial breeding. Commercially bred rabbits can be used for meat, for laboratory research, and as pets. Meat rabbits are sold live to processing plants who market them to retail groceries and restaurants. Rabbit breeders raising and selling rabbits for laboratory use sell directly to laboratories and are monitored and licensed by the USDA. Pet rabbits are raised and sold to wholesale dealers or directly to pet stores. Commercial breeders selling rabbits using a wholesaler, broker or *bunny runner* are licensed through the Animal Welfare Act (AWA).

Many hobby breeders are breeding animals to participate in the show ring (also called fancy). Culled show rabbits can be sold direct to consumers as pets, to other breeders for show or breeding purposes, to reptile feeder markets, research facilities or consumed for meat. Hobby breeders are not monitored by USDA, unless they sell to wholesalers or receive more than \$500 from the sale of their stock per year. Direct sales to pet owners are exempt from the limit. The other major hobby breeding group are small meat producers. Sales, when made, are usually direct to consumers and demand is often generated on a word of mouth basis.

There are a number of small groups included in the “Hobby - Other” group. Shelters and unintentional litters are included since shelters are a significant supply of pet rabbits (American Pet Products Manufacturers Association (APPMA), 2001). Wool breeders who are raising animals for wool production are also included. Though the number of rabbits being raised by 4H participants is not known, more than 95,000 youth participated in the various rabbit and cavy (guinea pig) projects offered across the country.

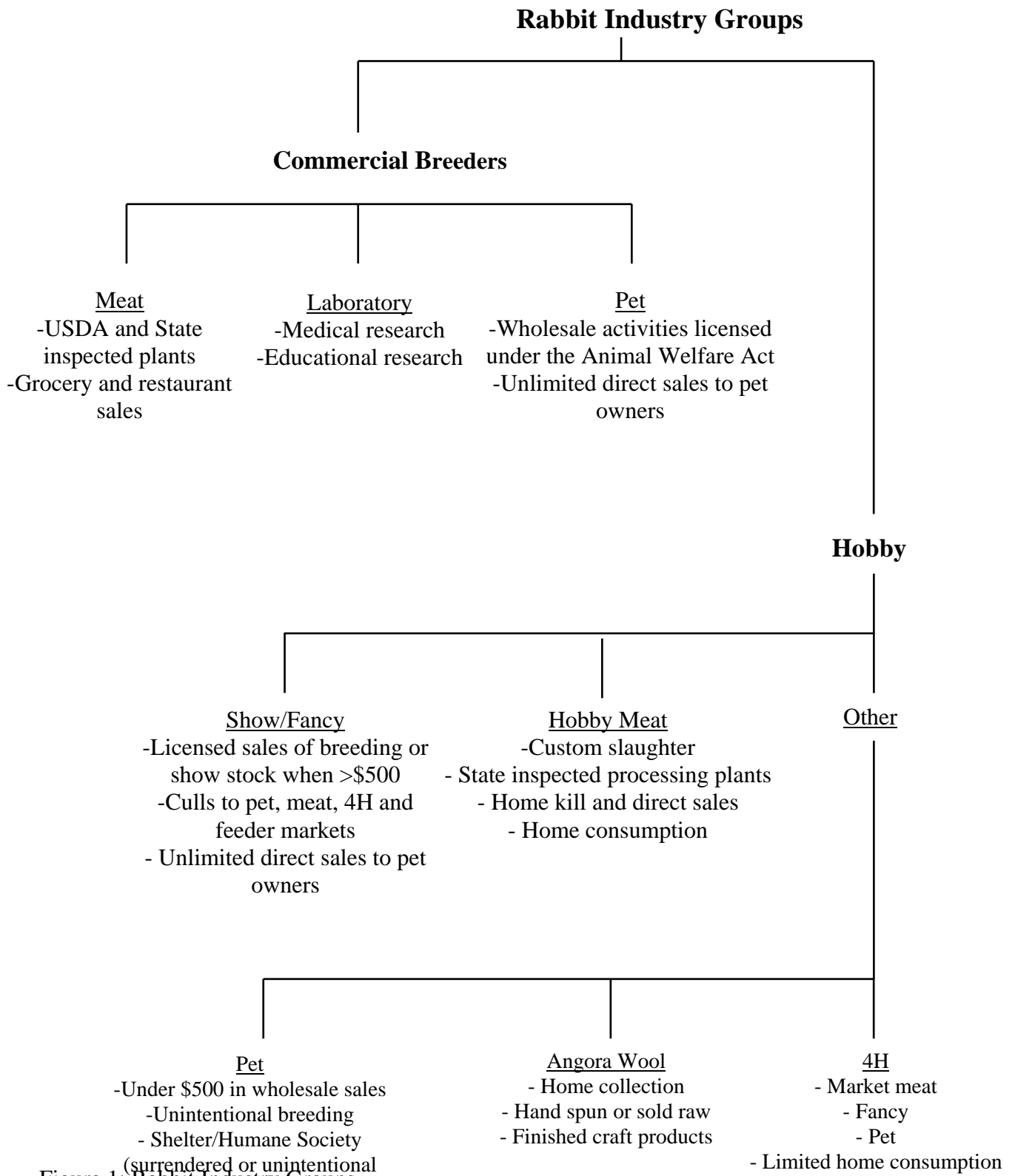


Figure 1: Rabbit Industry Groups

## 4. Commercial Production of Meat Rabbits

Commercial rabbitries are started with the purchase of all the necessary breeding does and bucks, or begun with a small investment of does and bucks that are bred over time to build up a herd. Commercial rabbitries in the U.S. generally use White (Albino) New Zealand rabbits, Californian rabbits, or hybrid crosses of the two breeds. Medium sized rabbits, nine to twelve pounds at maturity, are used because of their fast growth and high dressing percentages. Other rabbit breeds in the U.S. can also be raised for meat, but they are not generally used in the production of commercial rabbit meat in the U.S. Both the New Zealand and Californian rabbits have white pelts which make them more acceptable to processors who can more easily access markets for white pelts and byproducts.

### 4.1 The Rabbitry

Costs related to starting a commercial rabbitry include stock, housing, equipment, and utilities. Estimates of per doe start-up costs are generally around \$70 (as high as \$90). Automatic waterers are used to reduce labor time and cost, but incur a higher up-front investment. Commercial rabbitries usually feed pellets, as they provide balanced nutrients for production of meat but hay may also be provided. A review of extension publications on rabbitries provides a range of rabbitry costs per doe per year. Table 1 has those values and number of does in the herd and the type of production facility (closed building or covered/outdoor). These estimates do not include capital costs, and do not suggest that one type of operation is more economical than another. None of the cost estimates collected included labor costs, as it is possible to maintain a herd of up to 1,000 does using only the services of a husband and wife team (Lukefahr, et al.). Rabbitries do not appear to have the advantages of economies of size and scale at the production levels usually considered in the U.S.

Table 1: Average Annual Per Doe Cost

| Annual Cost Per Doe Per Year | Number of Does in the Herd | Total Annual Operating Costs | Type of Building |
|------------------------------|----------------------------|------------------------------|------------------|
| \$72                         | 10                         | 721                          | Closed Building  |
| \$74                         | 100                        | 7,391                        | Closed Building  |
| \$83                         | -                          | -                            | Covered/Outdoor  |
| \$109                        | 30                         | 3,282                        | Either           |
| \$118                        | 100                        | 11,760                       | Closed Building  |
| \$124                        | 200                        | 24,743                       | Closed Building  |

*Source: Various extension publications*

Modern commercial rabbitries are generally designed with rows of single tiered wire bottomed cages attached to walls or hung from the ceiling. Multi-tiered systems can still be found, but innovations from Europe indicate that single-tiered systems are more efficient (Lebas et al, 1997). Multi-tiered systems in the U.S. are still popular with hobby breeders since they reduce the amount of space needed for the herd. Rabbits are sensitive to the ammonia fumes created by their urine and the more densely packed the rabbits are, the more likely they are to develop medical problems related to concentration. Single tiered cage systems have open wire

mesh bottoms and waste and urine falls into a pit. The deeper the pit, the less often it needs to be emptied.

The rabbitry can be closed with controlled atmosphere, or open with walls (plastic, canvas, etc.) that can be lowered. Indoor facilities offer disease monitoring and control, and protection from wind and weather. Negative impacts from concentration of waste and animals can be managed through proper ventilation. Studies suggest that fourteen hours of light per day is necessary to keep does at peak production, though bucks need substantially less light per day to maintain peak performance (Lebas et al, 1997; McNitt et al, 2000). Light management is used for both indoor and outdoor rabbitries to increase production. Outdoor rabbitries are less expensive to construct but are susceptible to predators, drafts and disease transmission from wild animals. The benefits of fresh circulating air may outweigh any potential predator risks when choosing which type of rabbitry to construct.

#### 4.2 Meat Breeding Stock and Breeding Practices

High quality commercial breeding stock can be purchased for \$10 to \$25 (Lukefahr, Paschal and Ford). Replacement stock can be bred within the herd or purchased externally. Replacement of all does is generally done every 18 months, though each production facility will use its own schedule for replacement. Bucks can remain productive for up to 6 years and replacement rates vary across rabbitries. Each doe will be bred and kindle 5 to 8 times a year, based on the intensiveness of the rabbitry. Tracking production information has been eased by the development of software programs specifically designed to track rabbitry production (i.e. Stibbar, Bunny Master, Rabbit Register). Breeding stock can be sold to supplement the profits from meat sales.

Medium sized rabbits, including the most common meat breeds, are ready to breed between five and 6 months of age. Does can be re-bred immediately after giving birth, but the practice requires a high level of expertise and a well managed feeding program. A more extensive approach is more common with does rebred 14 to 28 days after the birth of the previous litter. Large litter sizes (8 plus) are desired in the commercial rabbitry, but excessive litter sizes (11 or more) are not manageable for does. Fostering, the transferring of kits from one doe to another nursing doe, can be used to keep litter sizes manageable (Lebas et al, 1997).

A nest box is necessary for new born kits. A common size is 18" x 12" x 12" with one low side of 6 inches (Schoenian, 1998). Prior to kindling, the doe lines the straw filled box with wool pulled from her belly. The kits remain in the nest box until they can survive without the body heat provided by their nest mates (15 days) and the nest box is usually removed by 21 days. Mortality when the kits are in the preweaning stage can be up to 40 percent (Lebas et al, 1997). Weaning depends on the rebreeding schedule, but the doe will reduce milk production after 3 weeks. Once the kits are weaned they are moved to grow out cages where they are fed to market weight.

There does not seem to be a consensus in the U.S. commercial industry about the number of fryers needed per doe per year to establish a profitable commercial rabbitry. Litters of 8 to 10 kits are considered to be optimal for commercial production. Breeding schedules, however, are what determine the total annual fryer production per doe. McNitt et al. suggest that 35 fryers per doe annually are needed to cover the costs of production. This would imply that for each doe, 8 kits per litter are marketed from 5 litters annually. A sampling of extension publications on the topic suggest an average of 44 kits per doe per year is needed to cover variable costs.

Feed conversion for fryers is about 1 pound of meat from 4 pounds of feed (Lebas, et al, 1997; Bennett, 2000). Feed costs for producing one pound of meat, including the feed for does, is estimated at \$.60 pound (Bennett, 2000). Young rabbits are marketed live as fryers between 8 and 12 weeks of age and around 4 to 5.5 pounds of live weight.

#### 4.3 Marketing Rabbit Meat

Meat rabbits are marketed live and killed at the processing plant. Large processors market the meat, usually whole cut up rabbits, to groceries and restaurants. Processors also profit from the sale of rabbit by-products (brain and blood serum). Furs or pelts can also be sold, though fur from meat rabbits is low quality because of the young age of the rabbits. White furred rabbits produce a lighter meat and the fur can be easily dyed any color. Average fryer price hovers around \$.80 per pound, though \$1.00 a pound is quoted for some areas (Benett, 2000).

Rabbits weighing more than 5.5 pounds or older than 16 weeks (but not previously sexually active) are sold as roasters at a large discount and the market is very small. There is not a market for rabbits that have been sexually active (stewers) in the U.S. Dress-out percentage for fryers is between 50 and 60 percent, resulting in a range of retail weights between 2.2 and 3 pounds. Retail supermarket prices for rabbit meat vary widely and a national average is not available. Prices from \$3 a pound to \$6 a pound have been reported. Rabbit meat is also marketed via the Internet with prices ranging from \$2.65 per pound to \$4 per pound, exclusive of shipping costs.

#### 4.4 Commercial Rabbit Production Byproducts

Rabbit manure can be a profitable byproduct. Rabbit manure does not need to be composted to be an excellent fertilizer, and it can be sold to gardeners or garden suppliers. Rabbit manure can also be used as worm habitat. The reptile feeder market pays well for dead kits (pinkies and fuzzies). Live, fryer rabbits can also be sold to the reptile feeder market. The live rabbit feeder market can pay up to \$10 per rabbit (Bennett, 2000).

#### 4.5 Rabbit Slaughter

USDA inspection is only done at a few processing plants nationally, and since rabbits are not classified as livestock, the USDA inspection is conducted as a voluntary fee for service program. Rabbits may also be commercially slaughtered according to an array of state, county and municipal guidelines. In some states, direct sales from unlicensed processing are acceptable, though usually the low values only make this an option for hobby meat producers. The following table (Table 2) has the fiscal year slaughter of rabbits at USDA inspected slaughter facilities since 1985. In 2001 there were five USDA inspected facilities, but only one in 2000. Rabbit slaughter facilities come in and out of production, and since 1985 there have never been more than eight USDA inspected facilities.

Table 2: Fiscal Year Domestic Rabbit Slaughter in USDA inspected Facilities - 1985-2001

| <b>Year</b> | <b>Slaughter<br/>Number of Rabbits</b> |
|-------------|--|
| 2001        | 382,179                                |
| 2000        | 385,435                                |
| 1999        | 367,654                                |
| 1998        | 339,797                                |
| 1997        | 516,351                                |
| 1996        | 562,171                                |
| 1995        | 418,500                                |
| 1994        | 266,721                                |
| 1993        | 374,164                                |
| 1992        | 431,975                                |
| 1991        | 492,007                                |
| 1990        | 598,837                                |
| 1989        | 786,585                                |
| 1988        | 789,921                                |
| 1987        | 607,076                                |
| 1986        | 663,614                                |
| 1985        | 826,703                                |

*Source: FSIS*

Total rabbit slaughter/consumption is estimated to be between 20 and 25 percent larger than the numbers above. That would imply that 2000<sup>2</sup> total slaughter was between 1.9 and 2.3 million rabbits. Lebas and Hake, suggest that U.S. rabbit consumption in 1992 and 2000 was 35,000 metric tons of carcass weight (37 million pounds) or 8.3 million rabbits (at 4.5 pounds carcass weight). Others suggest that between 6 and 8 million rabbits are consumed per year and 200,000 thousand producers market those rabbits. The Lebas and Hake estimates are based on a survey originally conducted in 1991 by Lebas and Colin, and no original source for the 6 to 8 million rabbit production estimate was found. The 1.9 to 2.3 estimate is used in the rest of the paper as it was developed by producers and processors marketing rabbits daily in the U.S.

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<sup>2</sup>The 2000 number is used to ease comparison with other available data.

## **5. Commercial Production of Rabbits for Laboratory and Research Markets**

### 5.1 Commercial Laboratory Production

The laboratory rabbit industry group is composed of research facilities using rabbits for medical research or testing, and educational facilities or hospitals using rabbits for research and training purposes. In fiscal year 2000, 258,754 rabbits were used in research, down from 1999. Rabbits used by the laboratory industry group are provided by breeders licensed under the AWA. Rabbits used in research may be raised conventionally (in the same manner as other commercial rabbits), specific pathogen free (SPF) or barrier specific. SPF and barrier specific production methods require closed facilities and excellent disease management. In barrier specific production kits are delivered by cesarean section so as not to be contaminated by pathogens in the birth canal (Lamar). SPF and barrier specific rabbits are more costly to produce than conventional rabbits, but higher prices are paid by purchasers. The distribution of production practices for laboratory rabbits is not known, though it is suggested that most laboratories prefer the SPF free rabbits.

High quality animal production is essential for the laboratory market, and commercial-type intensive production is not appropriate. Variable demand from laboratories is an additional challenge to marketing rabbits to this industry. Laboratories may require older animals, rabbits of one sex, SPF or animals of specific breeding lineage, all of which can contribute to extra costs in raising rabbits for the laboratory market. Each order for rabbits received by the producer will be specific to the research to be undertaken. Pricing depends on the specific characteristics of the rabbits ordered, with the majority of sales conducted on an as-needed basis.

The USDA monitors the breeders of animals for use in laboratory research as well as the laboratories themselves under the provisions of the AWA. Data on the number of rabbits in USDA inspected facilities is included in Table 3. Research facilities are exclusively part of the laboratory industry group, while the breeders and dealers listed in Table 3 may also supply the pet market through wholesalers and brokers. Wholesalers or brokers would also be included in these columns. Laboratories using rabbits in research are located throughout the U.S., but concentrated in California, Texas, Ohio and the East Coast. Federal agencies using rabbits in research are neither licensed nor inspected but are expected to provide the same quality of life as the inspected research facilities. Use of rabbits in research by federal agencies was only 4 percent of the total number of rabbits used in research facilities in fiscal year 2000 (USDA, APHIS, Animal Care).

### 5.2 Laboratory Rabbit Breeds

The New Zealand is the most common breed utilized for the research sector. New Zealands are popular because of their consistently abundant supply (Bennett, 2000)). The Dutch (also known as the Dutch Banded) is the second most frequently used breed of rabbit in research. The Dutch are smaller rabbits than the New Zealand requiring less cage space and less feed, characteristics that can make them attractive alternatives to the New Zealand. Laboratory breeders may not choose to advertise the fact that they are raising animals for medical research due to potential reactions from animal rights activists. Information regarding the industry seems specific to each producer, with industry standards dictated by the research facilities and the AWA.

Table 3: Laboratory Industry Group - Research Facilities, Breeders and Dealers

|                   | Research Facilities <sup>1</sup><br>(1999) |              | Breeders <sup>2</sup><br>(1999) |         | Dealers <sup>2</sup><br>(1999) |         |
|-------------------|--|--------------|---------------------------------|---------|--------------------------------|---------|
|                   | Number                                     |              |                                 |         |                                |         |
| State             | Facilities                                 | Rabbits Used | Rabbitries                      | Rabbits | Dealers                        | Rabbits |
| Alabama           | 9  | 2,045        | 2                               | 67      | 3                              | 86      |
| Alaska            |  |              |                                 |         |                                |         |
| Arizona           | 5  | 892          |                                 |         | 1                              | 5       |
| Arkansas          | 6  | 1,657        |                                 |         | 1                              | 67      |
| California        | 115  | 50,541       | 2                               | 24,400  | 4                              | 3,539   |
| Colorado          | 11   | 1,479        |                                 |         | 1                              | 26      |
| Connecticut       | 9  | 2,882        |                                 |         | 2                              | 18      |
| Delaware          | 6  | 4,241        |                                 |         | 2                              | 7       |
| Dist. of Columbia | 8  | 1,290        |                                 |         |                                |         |
| Florida           | 9  | 1,491        | 3                               | 756     | 5                              | 712     |
| Georgia           | 13   | 12,191       |                                 |         | 1                              | 70      |
| Hawaii            | 1  | 59           |                                 |         |                                |         |
| Idaho             | 3  | 80           |                                 |         | 1                              | 30      |
| Illinois          | 26   | 9,377        |                                 |         | 4                              | 21      |
| Indiana           | 13   | 2,678        | 1                               | 23      | 3                              | 17      |
| Iowa              | 13   | 5,853        | 2                               | 720     | 3                              | 732     |
| Kansas            | 7  | 1,607        |                                 |         | 8                              | 61      |
| Kentucky          | 4  | 1,708        |                                 |         |                                |         |
| Louisiana         | 6  | 2,706        | 2                               | 169     | 1                              | 6       |
| Maine             | 3  | 182          |                                 |         |                                |         |
| Maryland          | 32   | 11,409       |                                 |         | 2                              | 56      |
| Massachusetts     | 47   | 11,495       | 1                               | 3,934   | 1                              | 457     |
| Michigan          | 20   | 5,126        | 1                               | 127     | 2                              | 28      |
| Minnesota         | 15   | 4,469        |                                 |         |                                |         |
| Mississippi       | 4  | 255          | 1                               | 800     | 1                              | 250     |
| Missouri          | 19   | 4,711        | 3                               | 2,000   | 7                              | 260     |
| Montana           | 4  | 632          |                                 |         |                                |         |
| Nebraska          | 10   | 3,465        |                                 |         |                                |         |
| Nevada            | 1  | 92           |                                 |         | 2                              | 19      |
| New Hampshire     | 4  | 369          |                                 |         |                                |         |
| New Jersey        | 30   | 23,038       | 1                               | 680     | 3                              | 2,194   |
| New Mexico        | 4  | 44           | 1                               | 13      |                                |         |
| New York          | 53   | 7,014        | 3                               | 493     | 6                              | 148     |
| North Carolina    | 16   | 10,273       | 1                               | 1,300   | 3                              | 29      |
| North Dakota      | 3  | 6            |                                 |         |                                | 300     |
| Ohio              | 29   | 20,023       |                                 |         | 4                              | 59      |
| Oklahoma          | 9  | 446          |                                 |         | 2                              | 155     |
| Oregon            | 8  | 680          | 1                               | 5,500   | 4                              | 9       |
| Pennsylvania      | 43   | 37,027       | 2                               | 26,080  | 6                              | 1,935   |
| Puerto Rico       | 4  | 68           |                                 |         |                                |         |
| Rhode Island      | 5  | 335          |                                 |         |                                |         |



Table 3 (Continued): Laboratory Industry Group - Research Facilities, Breeders and Dealers

| State          | Research Facilities <sup>1</sup><br>(1999) |                | Breeders <sup>2</sup><br>(1999) |               | Dealers <sup>2</sup><br>(1999) |               |
|----------------|--|----------------|---------------------------------|---------------|--------------------------------|---------------|
|                | Facilities                                 | Rabbits Used   | Rabbitries                      | Rabbits       | Dealers                        | Rabbits       |
| South Carolina | 4  | 470            |                                 |               |                                |               |
| South Dakota   | 4  | 223            | 1                               | 10            |                                |               |
| Tennessee      | 10   | 1,692          | 1                               | 2             |                                |               |
| Texas          | 43   | 18,279         | 4                               | 1,860         | 12                             | 427           |
| Utah           | 8  | 620            |                                 |               |                                |               |
| Vermont        | 2  | 127            | 1                               | 545           | 1                              | 369           |
| Virginia       | 10   | 4,333          |                                 |               | 1                              | 8             |
| Washington     | 11   | 3,099          | 1                               | 2,000         | 1                              | 1             |
| West Virginia  | 3  | 134            |                                 |               | 1                              | 150           |
| Wisconsin      | 11   | 4,505          | 1                               | 496           | 2                              | 32            |
| Wyoming        | 2  | 26             |                                 |               |                                |               |
| <b>Total</b>   | <b>735</b>                                 | <b>277,444</b> | <b>36</b>                       | <b>71,975</b> | <b>101</b>                     | <b>12,283</b> |

<sup>1</sup> The number of rabbits is the number that was used in research in 1999

<sup>2</sup> The number of rabbits is the inventory at last inspection

Sources: USDA, APHIS, Animal Care and USDA, NASS

## 6. Commercial Production of Rabbits for Pets

### 6.1 Production and Sale of Pet Rabbits

Commercially produced pet rabbits are most often sold through pet stores and are often requested at four weeks of age. Older rabbits are not as desirable, and larger breeds of rabbits are also not as popular with pet stores. There does not appear to be a pet rabbit producer organization in the U.S. The USDA regulates producers breeding pets for wholesale trade and for direct deliveries to pet stores. The number of licensed breeders and dealers in 1999 was listed in Table 3. Commercial pet producers selling to wholesalers, brokers or pet stores are licensed according to the AWA. Producers selling pets directly to owners, without the use of a middleman, do not need to be licensed under the AWA, though this practice is most likely used more frequently by hobby producers.

Rabbits bred by the commercial producer reach the pet store through a number of different routes. Some commercial breeders sell their rabbits directly to pet stores. They arrange for a price and age of rabbit to be delivered, and make the delivery themselves or hire someone else to make the delivery. These delivery people, *bunny runners* pick up rabbits from a number of sites, fill their vehicle and deliver to a single large store or to a number of smaller stores. A commercial rabbit producer can also use a broker to arrange sales. The broker contacts the pet store, arranges the price and delivery date, then contracts with a wholesaler, bunny-runner or large producer to deliver the rabbits to the pet store.

### 6.2 Pet Rabbit Ownership

The size of the pet rabbit population in 2000 was estimated at 5.28 million by the American Pet Products Manufacturers Association (APPMA). The APPMA survey was conducted nationally and asked respondents numerous questions about the pets that live in their household. The total pet population in the U.S. was 353 million, which included cats, dogs, birds, saltwater fish, freshwater fish, reptiles and small animals. Of the 63.4 million households that owned pets, 5.5 million owned small animals, or a small animal population of 19 million. Forty percent of households owning small animals owned rabbits (2.2 million households) and the average number of rabbits owned per household was 2.4. Table 4 lists the major pets investigated by APPMA, and Table 5 provides the same information specific to the small animal category.

The pet rabbit community has an active on-line presence. There are numerous pages of owners with pictures of their house-rabbits as well as owners with outdoor rabbits. Pet rabbits and their owners are represented by a number of groups throughout the U.S., including the House Rabbit Society (HRS). The HRS advocates keeping pet rabbits inside and altering rabbits once they reach sexual maturity. Advice about what to feed, how to house, and potential health concerns for pet rabbits are also available on the web.

Table 4: Pet Ownership in the U.S.

| <b>Animal</b>          | <b>Number of Households in Millions</b> | <b>Percent of Total U.S. Households</b> | <b>Number of Animals Owned in Millions</b> | <b>Number of Animals Owned Per Household</b> |
|------------------------|---|---|--|--|
| <b>Dogs</b>            | 40                                      | 60                                      | 68   | 1.7  |
| <b>Cats</b>            | 34.7                                    | 34                                      | 73   | 2.1  |
| <b>Freshwater Fish</b> | 12.2                                    | 12                                      | 12.2                                       | 13   |
| <b>Birds</b>           | 6.9                                     | 7                                       | 19   | 2.7  |
| <b>Small Animals</b>   | 5.5                                     | 4                                       | 19   | 3.4  |
| <b>Reptiles</b>        | 4                                       | <.1                                     | 9  | 2.2  |

*Source: 2001/2002 APPMA National Pet Owners Survey*

Table 5: Household Ownership of Small Animals

| <b>Type of Small Animal</b>  | <b>Percent of Total Small Animal Population</b> | <b>Number of Each Small Animal Owned</b> | <b>Total U.S. Population of Small Animals</b> |
|--|---|--|---|
| <b>Total Households Owning Small Animals in 2000 = 5.5 million</b> |   |  |   |
| <b>Rabbit</b>  | 40  | 2.4                                      | 5,280,000                                     |
| <b>Hamster</b>   | 29  | 2.3                                      | 3,668,500                                     |
| <b>Guinea Pig</b>  | 18  | 1.4                                      | 1,386,000                                     |
| <b>Ferret</b>  | 10  | 1.8                                      | 990,000                                       |
| <b>Mouse/Rat</b>   | 10  | 2.9                                      | 1,595,000                                     |
| <b>Gerbil</b>  | 8   | 2.4                                      | 1,056,000                                     |
| <b>Chinchilla</b>  | 3   | 1.4                                      | 231,000                                       |
| <b>Hermit Crabs</b>  | 2   | 2  | 220,000                                       |
| <b>Pot-Bellied Pig</b>   | 2   | 2.7                                      | 297,000                                       |
| <b>Hedgehog</b>  | 1   | 1  | 55,000  |
| <b>Other</b>   | 15  | 4.9                                      | 4,042,500                                     |
| <b>Total Small Animal Pet Population</b>                           |   |  | <b>18,821,000</b>                             |

*Source: 2001/2002 APPMA National Pet Owners Survey*

## 7. Hobby Rabbit Breeding

### 7.1 The Show Rabbit

Hobby breeders and owners of show rabbits are represented by a number of organizations that facilitate and organize rabbit shows. The American Rabbit Breeders Association (ARBA) registers and sanctions rabbit shows, breeds and organizations throughout the U.S. ARBA recognizes breed specific and showing organizations at both the state, region and local area levels. These groups are active with state and local shows held every month throughout the country. The ARBA maintains an Open section for adults and a Youth section. ARBA sanctioned 3,000<sup>3</sup> shows in 2000. ARBA sanctions fair shows, but there are also 4H/FFA programs that operate without ARBA oversight. There is an overlap of enrollment in the 4H/FFA rabbit programs and the ARBA Youth organization, but to what extent is not known.

The ARBA recognizes 45 show breeds. Other countries recognize additional breeds but all show rabbits in the U.S. and elsewhere are *O. cuniculus*. The 45 breeds have been developed from breeding programs that emphasize various characteristics including body type, fur color, ear carriage and ear length. Pictures of each individual breed can be seen at the ARBA website ([www.arba.net](http://www.arba.net)). Each of the breeds must conform to the guidelines published by ARBA in the Standard of Perfection, and are judged during rabbit shows on their conformation to those guidelines. Average herd size may be thirty rabbits, but much larger herds are also possible. Space limitations lead many show breeders to utilize existing structures such as garages or barns and to use multi-tiered systems for housing their animals.

Table 6 shows the top 10 entrants by breed at the 2000 and 1999 ARBA national conventions. The 1999 show had 20,861 rabbits entered and the 2000 show had a total of 21,783 rabbits entered. The most popular rabbit breeds for showing are also some of the more popular breeds for pets. The 2000 and 1999 ARBA national shows were dominated by the Netherland Dwarf, Mini Rex and Holland Lop breeds. Pet stores request small breeds, and these three reach maximum weights under four pounds. It is common for breeders to sell their culled breeding stock or non-premium kits to pet owners. The popularity of small breeds at the national shows and the demand for the smallest rabbits in the pet marketplace suggest that these two markets may influence each other.

A participant in a show may show as many rabbits as they want and the average number of rabbits per open exhibitors at the 2000 open national show was 11. The average number of rabbits per youth exhibitor was 8 rabbits. Unlike dog shows, the rabbit owner must show the rabbit, and, therefore, there are no professional rabbit handlers. Rabbit owners showing their rabbits are called exhibitors. To compete in a show the rabbit must have an identifying tattoo in their left ear, with the characters in the tattoo at the owner's discretion. ARBA membership is not required to compete in an ARBA sanctioned rabbit show.

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<sup>3</sup>This number includes shows for Cavies (guinea pigs), which are also sanctioned by the ARBA.

Table 6: Most Popular Breeds at the 1999 and 2000 ARBA National Conventions

| <b>ARBA National Convention Rabbits Shown By Breed - Open Shows</b> |                          |                                  |                          |
|---|--------------------------|----------------------------------|--------------------------|
| <b>2000 Columbus, Ohio</b>  |                          | <b>1999 Louisville, Kentucky</b> |                          |
| <b>Breed</b>  | <b>Number of Rabbits</b> | <b>Breed</b>                     | <b>Number of Rabbits</b> |
| Netherland Dwarf  | 2,360                    | Mini Rex                         | 2,084                    |
| Mini Rex  | 2,196                    | Netherland Dwarf                 | 1,898                    |
| Satin   | 1,936                    | Satin                            | 1,888                    |
| Holland Lop   | 1,645                    | Holland Lop                      | 1,398                    |
| New Zealand   | 1,334                    | New Zealand                      | 1,147                    |
| Dutch   | 1,065                    | Mini Lop                         | 1,068                    |
| Mini Lop  | 1,039                    | Dutch                            | 1,045                    |
| Rex   | 908                      | Rex                              | 949                      |
| Jersey Wooly  | 827                      | Jersey Wooly                     | 901                      |
| Flemish Giant   | 787                      | French Lop                       | 726                      |

*Source: ARBA Website (www.ARBA.net)*

Rabbits entered in a show should be in good health, but are not required to show a veterinary certificate if they traveled across state borders. Veterinary certificates are generally not obtained for travel between states, and ARBA members are expected to bring healthy animals to competition. The judge may disqualify a rabbit on the basis of health when presented for competition. Show participants are encouraged to quarantine their animals once they return home.

While most breeders insist that high-quality breeding stock can be had for no more than \$50, there are some breeders selling rabbits in excess of \$200. ARBA rules stipulate that exhibitors must be owners, but it does not require them to also have bred their show stock, and this provides a market for high quality show rabbits that may not be suited for breeding. The average cost of purchasing show rabbits can be higher than rabbits purchased for any other use. The more actively shown breeds seem to have higher prices, potentially attributable to a small supply of high-quality show animals and a large demand for them. High prices should indicate high quality, but many breeders continue to state that high-quality stock can be purchased for reasonable prices (under \$50).

Rabbit shows provide a marketplace for rabbit products. Feed, toys, supplies and accessories can all be found at rabbit shows. While APPMA suggests that pet owners spend \$116 per year on their rabbits, there is no comparable figure for show rabbits. Bennett estimated the annual cost of maintaining a rabbitry at \$942 per year, but the size of the rabbitry or the specific management characteristics were not included. Information about industry averages were not available to compare to the Bennett estimate.

## 7.2 Other Hobby Breeding Groups

### 7.2.1 4H Rabbits

The 4H rabbit projects offer youth an opportunity to raise, show and breed rabbits. Total U.S. enrollment in the rabbit and cavy project in 2000 was 95,892. The specific projects available to the youth vary across the individual states, but they are generally a marketing project where the rabbits are produced for meat, a showing project where show quality rabbits are bred

by the youth, and a pet project where the care and welfare of the animal is emphasized. The showing project also has breeding aspects as the goal is to bring a high-quality rabbit to the table that was the result of a breeding program. Successful showing skills can also be gained by showing rabbits someone else bred. The pet project offers an opportunity for urban youth to participate in a livestock project. The average number of rabbits owned by the youth participating in the programs is not known. Distribution of the participants across the various projects is also not known. Figure 2 is a map of the concentration of 4H youth participation in all of the various rabbit projects, including cavy (guinea pigs). Ohio has the highest number of participants in rabbit projects, followed by Michigan, Texas and Minnesota. It is not known how many rabbits each participant owns, though estimates range from one to thirty depending on the project goal. Only Mississippi and Virginia reported no participants in the rabbit program in 2000.

### 7.2.2 Wool

Rabbits are also raised to produce wool. Any of the wool breeds are capable of producing wool, but length, texture and color of the fiber will vary across each breed. Average wool production can be 2.4 pounds per year for intensive production facilities. Production falls off after three or four collections of the wool (Lebas et al, 1997). As there are limited markets for Angora wool fiber in the U.S., most of the sales are limited to direct sales of raw wool, yarn or finished products for sale in the craft or specialty market. Yarn and garments can be purchased through local specialty shops or via the internet. Only 1.9 metric tons of Angora yarn was imported in 2000, and most Angora wool is imported as finished garments.

### 7.2.3 Unintentional Breeding

The final hobby rabbit production group includes individuals who accidentally breed rabbits that are then passed onto friends, family or adopted to final homes through humane societies (APPMA, 2001). Rabbits purchased as pets may be turned into shelters when their owners can not care for them. The number of small or unintentional pet producers or shelters with rabbits is unknown, but these rabbits could represent more than six percent of all bunny sales (APPMA, 2000).

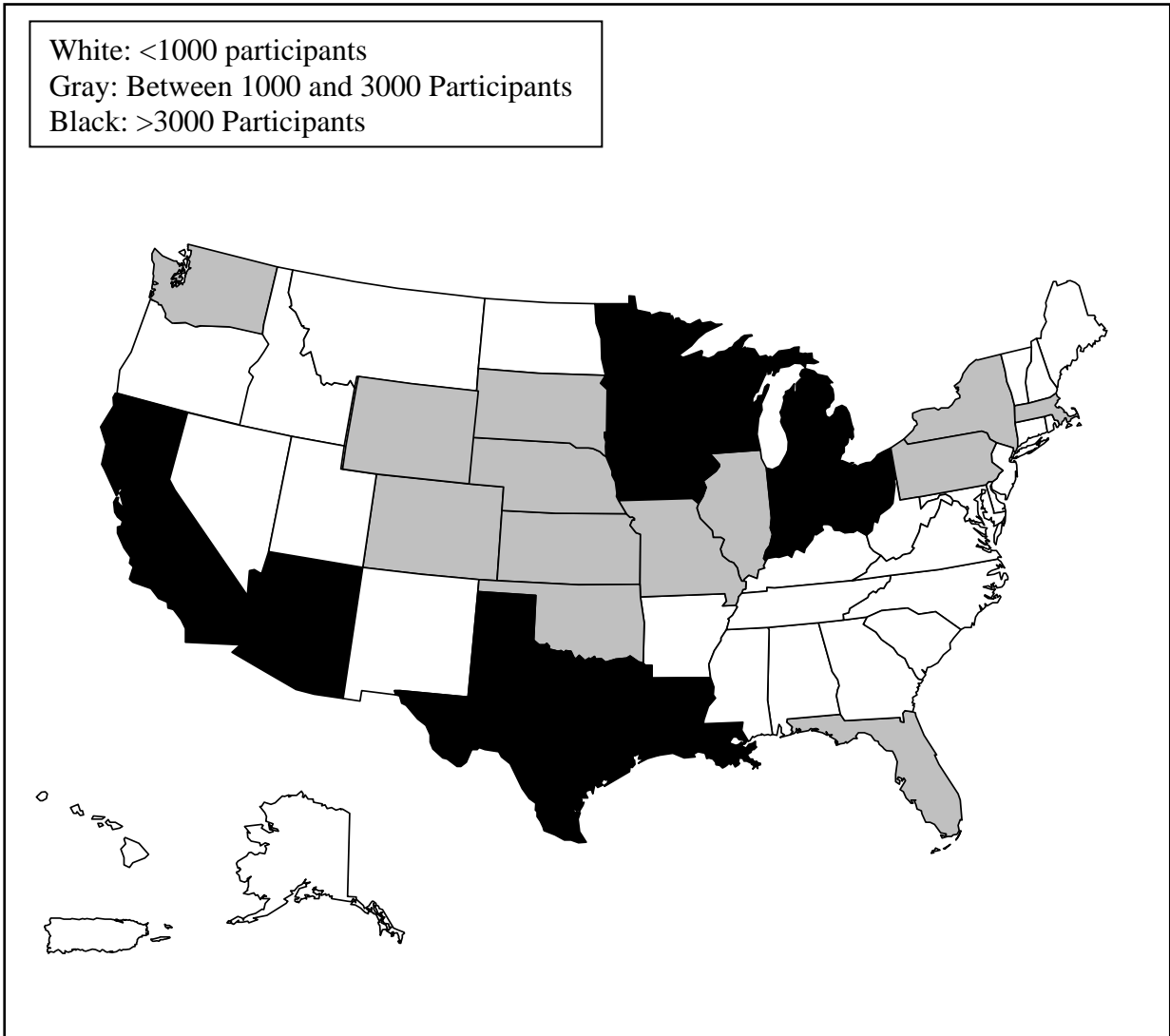


Figure 2: 4H Participation in Rabbit Projects

## **8. Trade in Rabbits**

### 8.1 World Trade

World exports in 2000 of rabbit meat were 56 thousand metric tons (\$154 million), 22,000 (\$46 million) of which originated in China (FAO). France, Hungary, the Netherlands and Spain also exported large quantities of rabbit meat in 2000. France, Italy and Belgium were significant exporters of rabbit skins in 2000. China and the Czech Republic exported smaller numbers of skins, but they were of comparatively higher value than the skins exported from France, Italy or Belgium. Belgium and Spain exported the largest quantities of live rabbits in 2000 with 1.1 million and 700,000 live rabbits exported respectively. France exported only 212,000 live rabbits in 2000, but their value was \$2 million making France the largest exporter of live rabbits on a value basis.

### 8.2 U.S. Exports and Imports

The U.S. exports small amounts of rabbit meat and rabbit products. In 2001, 57 metric tons of rabbit meat with a value of \$160,000 were exported from the U.S. to the Dominican Republic, Japan and the French Pacific Islands. In 2001, the U.S. exported a total of 45,000 furskins, either raw or dressed with a value of \$435,000. Most of the furskins exported in 2001 went to Germany. The U.S. exported 54,000 live rabbits in 2001 with a value of \$217,000 to Canada.

Total U.S. rabbit meat imports in 2000 were 682 metric tons with a value of \$1.5 million and in 2001 were 576 metric tons with a value of \$1.1 million. Total rabbit product imports in 2001 were worth \$2.5 million and most of the products were unprocessed furs. Live rabbit imports into the U.S. in 2001 originated from Canada, Hungary and Czechoslovakia with the majority being imported from Canada (111,000 rabbits).

Imported rabbit meat is inspected by the Food and Drug Administration (FDA). Though most meat imported into the U.S. is inspected by the USDA, rabbit is inspected by the FDA because it is not included in the federal meat inspection laws. The FDA issued a surveillance alert regarding rabbit imports in 1988 and updated the alert in 1993. The FDA is concerned that frozen rabbit meat contaminated with salmonella may be imported into the U.S. Decomposition, pesticide residue, and contamination by filth are also ongoing issues monitored by the FDA in frozen rabbit meat.

Appendix 1 contains a table listing imports and quantities for all rabbit meat and products from all countries since 1996.

### 8.3 Rabbit Trade Related to RHD Incidence

RHD is an emerging disease issue that affects rabbit production in many countries. Tanned skins, raw skins and wool from rabbits can harbor RHD for a significant length of time. Many rabbit products imported into the U.S. are imported from countries that have reported RHD outbreaks. Table 7 contains a list of the total rabbit products, meat and processed products, imported into the U.S. from 1996 through 2001. Table 8 contains the same list only for products from countries that have experienced RHD outbreaks. The tables show that 74 percent of all rabbits and rabbit products imported in 2000 were from countries previously reporting incidences of RHD infection. In 2001, 80 percent of imports were from countries that had experienced RHD outbreaks in the past.



Table 7: Total Rabbit and Rabbit Product Imports – All Countries - Value (1000 Dollars)

| <b>Country or Region</b>         | <b>1996</b> | <b>1997</b> | <b>1998</b> | <b>1999</b> | <b>2000</b> | <b>2001</b> |
|----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>ARGENTINA</b>                 | 177         | 228         | -           | -           | -           | -           |
| <b>BELGIUM-LUXEMBOURG</b>        | 8           | 377         | 325         | 328         | 441         | 262         |
| <b>BRAZIL</b>                    | 133         | 317         | 76          | 25          | 23          | 7           |
| <b>CANADA</b>                    | 157         | 517         | 577         | 799         | 1037        | 1215        |
| <b>SRI LANKA</b>                 | -           | -           | -           | -           | 2           | -           |
| <b>CHINA, PEOPLES REPUBLIC</b>   | 1094        | 1426        | 497         | 556         | 1438        | 1018        |
| <b>CHILE</b>                     | -           | -           | 10          | -           | -           | -           |
| <b>CZECHOSLOVAKIA</b>            | -           | 5           | 3           | 38          | 231         | 37          |
| <b>FINLAND</b>                   | -           | -           | -           | -           | -           | 1           |
| <b>FRANCE</b>                    | 82          | 27          | 59          | 544         | 265         | 187         |
| <b>GERMANY</b>                   | -           | 11          | -           | -           | 107         | 10          |
| <b>GREECE</b>                    | -           | -           | -           | -           | 10          | -           |
| <b>HONG KONG</b>                 | -           | 2           | -           | 8           | 19          | -           |
| <b>HUNGARY</b>                   | -           | -           | -           | -           | 56          | 7           |
| <b>ITALY</b>                     | 1           | 64          | 160         | 134         | 218         | 191         |
| <b>KOREA, REPUBLIC OF</b>        | -           | -           | -           | -           | 61          | -           |
| <b>NETHERLANDS</b>               | -           | 9           | -           | -           | -           | -           |
| <b>NORWAY</b>                    | -           | -           | -           | -           | -           | -           |
| <b>NEW ZEALAND</b>               | 20          | 56          | -           | -           | -           | -           |
| <b>PERU</b>                      | -           | -           | -           | -           | -           | 6           |
| <b>POLAND</b>                    | -           | -           | -           | -           | 18          | 9           |
| <b>PORTUGAL</b>                  | 72          | 78          | 60          | 86          | 77          | -           |
| <b>SOUTH AFRICA, REPUBLIC OF</b> | -           | -           | -           | 3           | 8           | -           |
| <b>SPAIN</b>                     | 969         | 868         | 718         | 425         | 533         | 670         |
| <b>TURKEY</b>                    | -           | -           | -           | 1           | 59          | -           |
| <b>TAIWAN</b>                    | -           | 21          | -           | -           | -           | -           |
| <b>UNITED KINGDOM</b>            | 4           | 9           | 49          | 81          | 24          | 4           |
| <b>UKRAINE</b>                   | -           | -           | -           | -           | 1           | 5           |
| <b>TOTAL</b>                     | <b>2717</b> | <b>4013</b> | <b>2535</b> | <b>3030</b> | <b>4629</b> | <b>3629</b> |

Source: U.S. Customs Data

Table 8: Total Imports from Countries that Have Experienced RHD Outbreaks - Value (1000 Dollars)

| <b>Country or Region</b>           | <b>1996</b> | <b>1997</b> | <b>1998</b> | <b>1999</b> | <b>2000</b> | <b>2000</b> | <b>2001</b> |
|------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>BELGIUM-LUXEMBOURG</b>          | 8           | 449         | 254         | 328         | 441         | 276         | 262         |
| <b>CHINA, PEOPLES<br/>REPUBLIC</b> | 1094        | 1720        | 497         | 556         | 1438        | 937         | 1018        |
| <b>CZECHOSLOVAKIA</b>              | -           | 5           | 3           | 38          | 231         | 200         | 37          |
| <b>FRANCE</b>                      | 82          | 27          | 59          | 544         | 265         | 142         | 187         |
| <b>GERMANY</b>                     | -           | 11          | -           | -           | 107         | 91          | 10          |
| <b>GREECE</b>                      | -           | -           | -           | -           | 10          | 10          | -           |
| <b>ITALY</b>                       | 1           | 64          | 160         | 134         | 218         | 164         | 191         |
| <b>KOREA, REPUBLIC OF</b>          | -           | -           | -           | -           | 61          | 61          | -           |
| <b>NETHERLANDS</b>                 | -           | 9           | -           | -           | -           | -           | -           |
| <b>NEW ZEALAND</b>                 | 20          | 56          | -           | -           | -           | -           | -           |
| <b>POLAND</b>                      | -           | -           | -           | -           | 18          | 7           | 9           |
| <b>PORTUGAL</b>                    | 72          | 97          | 42          | 86          | 77          | 77          | -           |
| <b>SPAIN</b>                       | 991         | 856         | 706         | 425         | 533         | 322         | 670         |
| <b>TAIWAN</b>                      | -           | 21          | -           | -           | -           | -           | -           |
| <b>UNITED KINGDOM</b>              | 4           | 9           | 49          | 81          | 24          | 10          | 4           |
| <b>TOTAL</b>                       | <b>2272</b> | <b>3322</b> | <b>1769</b> | <b>2191</b> | <b>3423</b> | <b>2296</b> | <b>2887</b> |

Source: U.S. Customs Data

## 9. Estimated Rabbit Population in the U.S.

The size of the domestic rabbit population in the U.S. is difficult to determine accurately. The domestic rabbit is not considered livestock by the USDA, and no independent entity exists that monitors all aspects of the various rabbit industry groups. USDA does monitor the number of rabbits that are slaughtered in USDA inspected facilities and requires licenses for exhibitors, breeders, handlers and laboratories according to the AWA. The Professional Rabbit Meat Association monitors prices and tracks active slaughter plants for members, but total national slaughter numbers are difficult to verify. The Agricultural Census monitors rabbit farms by state and the number of rabbits on the farms, but these numbers include rabbits from all of the industry groups, regardless of whether they are hobby or commercial rabbitries, and may include some pets that are kept on farms. The APPMA and the American Veterinary Medicine Association (AVMA) monitor the number of pet rabbits owned in the U.S. Their monitoring occurs through household surveys, which are subject to self-selection and other errors common to self-reporting. While ARBA maintains detailed membership records, they do not regularly monitor average herd size. The 4H youth program only monitors the number of participants but does not count the number of animals each youth owns. Finally, there are a number of rabbit breeders and dealers that do not need the USDA breeders license because they sell less than \$500 worth of rabbits to qualify for the license, or sell rabbits direct to consumers (a summary of regulations relevant to the rabbit industry is included as Appendix 2).

The following table (Table 9) contains an estimate of the number of domestic rabbits in the U.S. categorized by industry group and wherever possible attempts have been made to contact industry leaders to verify the estimated numbers. These estimates represent a good-faith attempt at a snap-shot of rabbit population in 2000. The most conservative population estimates have been used, and these values may represent a low estimate of the entire rabbit industry.

Table 9: Estimated Total U.S. Rabbit Population/Production by Industry Group 2000

| Industry Group                                    | Number of Estimated Rabbits  | Source of Estimate   |
|---|------------------------------|--|
| Farms*  | 530,189                      | 1997 Agricultural Census   |
| Pet   | 5,280,000                    | APPMA 2001/2002 National Pet Owners Survey   |
| Laboratory Use                                    | 258,754                      | Animal Care: 2000 Annual Report of Enforcement   |
| 4H  | 267,000                      | 2000 4H Enrollment Report with average herd size 3                                     |
| Hobby Breeding Stock/Show Animals                 | 930,000                      | ARBA membership (31,000) and average herd size of 30                                   |
| USDA Inspected Slaughter                          | 385,435                      | USDA FSIS  |
| Other, Estimated Slaughter                        | 1,540,000 - 1,930,000        | Industry Experts   |
| Commercial Breeding Stock (meat, laboratory, pet) | 62,000+                      | Calculated from estimated slaughter, no commercial pet or laboratory estimate possible |
| Shelter Population                                | 43,000                       | 1996 Survey of Animal Shelters   |
| <b>Total</b>                                      | <b>9,300,000 - 9,700,000</b> |  |

### 9.1 Farm Rabbits

The 1997 Agricultural Census lists **530,189** rabbits on 13,320 farms. A farm is defined as any place from which agricultural sales greater than \$1,000 are made. Unfortunately, it is impossible to tell how many of these farms would be considered commercial or hobby. It is also impossible to determine which of these rabbits were destined for research, pet or meat sales. Though an important indicator of rabbit production on farms, it may exclude urban production of rabbits for meat or pet sales and large hobby herds. The Agricultural Census shows that the total number of farms producing rabbits is down since 1992 from 14,506 to 13,320 and inventory fell from 789,406 to 530,189. Sales in 1997 were made by 4,262 farms for a value of \$11 million down from sales of \$15 million in 1992. However, it is not known if these sales were exclusively for meat or if sales were also made to laboratory or pet markets.

### 9.2 Pet Rabbits

The APPMA's most recent survey results estimated pet rabbit population at **5.28 million**. Small animals are owned by 5.5 million of the households that own pets and 40 percent of households owning small animals own rabbits. Each household that owns rabbits owns, on average, 2.4. The AVMA also conducts and publishes a survey of household pet ownership, but their most recent survey was published in 1997. The AVMA's and APPMA's population estimates were similar in their previous publications (AVMA in 1997 and APPMA in 1998).

### 9.3 Laboratory and Research Rabbits

The AWA mandates that animals used in medical research are cared for in a humane manner. To accomplish this, all research facilities using animals are licensed and inspected by the USDA. In fiscal year 2000, **258,754** rabbits were used in research facilities in the U.S.

### 9.4 4H Rabbit Population

The National 4H website indicates that more than 95,000 youth participated in a rabbit/cavy project in 2000. There is no information provided by the national 4H regarding average herd size or distribution in the Rabbit and Cavy projects. Since the 95,000 plus participants are reported as participating in a Rabbit/Cavy project, an estimate is needed of the number of youth raising rabbits. In 2001, 93 percent of the animals shown at the national ARBA Youth show were rabbits, and this rough approximation is applied to the 4H numbers to separate out the participants in the cavy project<sup>4</sup>. The range of rabbits in the 4H youth program could be from a low of **267,000** when the estimated average herd size is 3.

### 9.5 Show Rabbit Population

ARBA members are judicious about announcing the size of their breeding herds because of concern over local regulations and the potentially negative activities of animal rights activists. ARBA has a membership of roughly 31,000. Cavy owners are included in the ARBA membership information and it is not known how many of the 31,000 ARBA members raise cavies exclusively. At the 2000 national Open show, 4.5 percent of the animals shown were cavies, and 7 percent of the animals shown at the national Youth show were cavies. If it is

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<sup>4</sup>4H does not track the number of animals utilized in their projects. They also have no information regarding the split between rabbit/cavy projects.

assumed that all ARBA members have at least one rabbit and an average herd size for all ARBA members is 30 rabbits, then there are could be **930,000** show rabbits in the U.S.

### 9.6 Meat Rabbit Production

An informal survey of rabbit industry sources indicate a consensus that the rabbits slaughtered at USDA inspected plants account for only 20 to 25 percent of all rabbits slaughtered. In fiscal year 2000 USDA inspected slaughter was 385,435 rabbits. If this number represents 20 to 25 percent of the total number of rabbits slaughtered, total slaughter in 2000 would be between **1,540,000** and **1,930,000** rabbits. Average retail fryer size is estimated around three pounds (a 4 or 4.5 pound carcass weight) indicating that between 4,625,000 and 5,781,000 pounds of rabbit meat were produced in fiscal year 2001.

### 9.7 Commercial Breeding Stock Population

The 3 commercial rabbit industry groups, meat, pet and laboratory are all supported by breeding stock. The number of breeding does and bucks needed to produce the estimated annual meat rabbit production in 2000 is estimated using the average fryers per doe per year of 44 developed from extension publications. Between 44,000 and 52,000 does are needed to support the 2000 production. Average production of fryers per doe varies and values from 35 to 52 have been suggested for the average commercial production per doe in the U.S. It appears that there is usually 1 buck in the breeding herd for every 10 does, though fewer bucks may be needed, and between 4,000 and 5,000 bucks are used. Finally, replacement stock is also in the herd. If one-third of does are replaced every 6 months (18 months to replace the total doe herd) then there should be an additional 14,000 to 17,000 unproductive young does. Bucks are replaced less often than does, perhaps every 5 years, and are ignored for this estimate. The total estimated commercial meat is breeding stock is between 62,000 and 75,000. Utilizing the data at hand it is not possible to estimate similar breeding stocks for laboratory and pet rabbits. Conservatively, total breeding stock should be in excess of **62,000**, but by how much is not known.

### 9.8 Shelter Rabbit Population

Another potential area where rabbits may reside, but be unreported is in animal shelters and rescues. It is unlikely that the APPMA pet-owner survey captured the full size of this population. National shelter rabbit populations are not available and the distribution of organizations across national, regional, state and local levels makes comprehensive data collection difficult. The APPMA estimated that 6 percent of the current pet population was obtained from the "Humane Society." However, the survey also included the categories *Friend/relative*, *Internet/online*, *Newspaper/classified ad*, *Previous/private owner* and *Other*, all of which could be methods through which shelter animals can be adopted. These categories sum to 49 percent (2,587,200) of all adoptions indicating that the shelter population of rabbits could in fact be very large at any point in time. A 1997 report estimated that **43,000** rabbits were abandoned at shelters in 1996.

## 10. Estimated Economic Value of the U.S. Rabbit Industry Groups

Because information is limited regarding all aspects of the rabbit industry groups, the value of the entire industry is not known. The following table (Table 10) provides estimates that are based on available information. The valuations are limited to pet care costs, pet purchase price and commercial production and sales of meat rabbits.

Table 10: Estimated Value of Individual Rabbit Industry Groups

| Industry Group   | Value<br>(\$1,000,000) | Source of Estimate   |
|--|------------------------|--|
| <b>Pet – Purchase Price</b>                                | 105 - 184              | APPMA  |
| <b>Pet – Supplies and Care</b>                             | 612                    | APPMA  |
| <b>Retail Meat Sales</b>                                   | 16 – 20                | USDA slaughter estimates and estimated retail price  |
| <b>Live Meat Rabbits from Farm or Rabbitry</b>             | 7 - 8                  | USDA slaughter estimates and price for live fryers   |
| <b>Rabbit Feed Industry for Commercial Meat Production</b> | 2.8 – 3.5              | Bennett, 2000; Does not include estimate of laboratory or commercial pet production feed costs |
| <b>Rabbitry start-up costs (one-time)</b>                  | 3 – 3.7                | Extension estimates for meat production  |
| <b>Estimated Total Value of Groups</b>                     | <b>745 – 831</b>       | Does not include value for laboratory rabbits or commercial breeding stock (pet, lab, meat)    |

### 10.1 Purchase Price and Value of Pet Care for Pet Rabbits

Of the 5.28 million pet rabbits, 33 percent were bought at a pet store or pet superstore (Petsmart, Petco), 13 percent were obtained from friends/ relatives, 13 percent were obtained from previous/private owners, 6 percent were bred at home and 6 percent were obtained from a Humane Society. The average purchase price was between \$20 and \$35, with a significant number of rabbits being given as gifts or for free. The one-time value of pet rabbit purchases was between **\$105 million** and **\$184 million** for the rabbit population reported by APPMA.

On average, rabbit owners spent \$116<sup>5</sup> on food, toys, supplies and non-surgical veterinarian visits per rabbit, per year (Table 11). This is down from 1998 when rabbit owners reported spending on average \$160 per rabbit, per year. These results indicate the value of the rabbit supply/products industry in 2000 was **\$612 million**. This represents .8 percent of the total non-surgical vet costs to all pet owners in the U.S. The cost of purchasing a pet rabbit and the amount of money spent on supplies and routine veterinary care easily make the pet rabbit group the most valuable of all the rabbit industry groups.

<sup>5</sup>These numbers should be valued with caution as they represent only 138 responses for the entire nation.

Table 11: Average Value for Non-Surgical Pet Care in 2000

| Animal*       | Average Non-Surgical Pet Care Costs Per Pet | Number of Animals (Millions) | Average Total Cost for Non-Surgical Pet Care (Millions) |
|---------------|---|------------------------------|---|
| Dogs          | \$549                                       | 68                           | \$37,332  |
| Cats          | \$387                                       | 73                           | \$28,251  |
| Birds         | \$293                                       | 19                           | \$5,667   |
| Small Animals | \$128                                       | 19                           | \$2,432   |
| Reptiles      | \$171                                       | 9                            | \$1,539   |
| <b>Total</b>  | <b>\$1,528</b>                              | <b>188</b>                   | <b>\$75,221</b>   |
| Rabbits**     | \$116                                       | 5.28                         | \$612   |

\* Fish are not included as the APPMA did not collect data on pet care costs for either Freshwater or Saltwater Fish

\*\*Rabbits are a subset of small animals, and do not count towards the total

Source: 2001/2002 APPMA National Pet Owners Survey

### 10.2 Retail Rabbit Meat Value

Average retail price per pound for rabbit meat is difficult to ascertain, though prices between \$3 and \$4 per pound and as high as \$6 per pound have been suggested. The USDA inspected slaughter is mainly distributed to high-end restaurants in major metropolitan areas and grocery stores. The distribution amongst the two outlets for rabbit meat is not known. Meat processed in state or locally inspected plants may also find its way into the supermarket or restaurant, but is also likely sold at specialty or ethnic stores and meat shops. Assuming all of the meat from the total slaughter estimate (1.54 to 1.93 million rabbits) is sold through retail chains at \$3.50 per pound, then the value of the 2001 rabbit slaughter was between **\$16 and \$20 million**.

### 10.3 Farm or Rabbitry Rabbit Meat Value

Average price received by the farmer in 2001 was estimated at \$.80 per pound of live weight fryer at an average weight of 4.5 pounds. Not all rabbits were sold for this price, as many producers sold meat directly and charged prices closer to retail values. Regional demand differences will also affect the price received for live rabbits. At a live weight price of \$.80, the farm-gate value for the estimated 2001 rabbit production was between **\$7 and \$8 million**. Compared to the value for the major livestock industries the rabbit industry is fairly inconsequential (Table 12)

Table 12: Value of Livestock Industry Sales and Supporting Industries

| Livestock          | 2000 Cash Receipts (Millions) | Average 2000 Per Capita Consumption (Pounds) |
|--------------------|-------------------------------|--|
| Beef               | 40,800                        | 69.5   |
| Pork               | 11,800                        | 53.8   |
| Poultry & Eggs     | 21,200                        | 100 (poultry)                                |
| Lamb               | 469                           | 1  |
| Rabbit (Meat Only) | 7 to 8                        | 0.02   |

Source: Meat Animals: Production, Disposition, Income (ZMA-BB), 4/27/01, USDA, NASS; Poultry: Production and Value--supplement (PBH-BB), 4/25/01, USDA, NASS.

#### 10.4 Related and Support Industries for Rabbits

The feed industry is the primary benefactor of the commercial rabbit industry groups. Estimated average cost to produce one pound of meat feeding pelleted rabbit food, including the feed for the dam, is \$.60 (Bennett, 2000). For three pound market rabbits this suggests that the rabbit feed industry may be worth between **\$2.8 and \$3.5** million for meat production only. Other markets that benefit from commercial rabbit industry groups are suppliers of the products needed for housing and caring for rabbits. Start-up costs per doe are around \$70.00 per doe or between **\$3 to \$3.7** million to set up the estimated meat breeding doe population. Similar estimates for the cost of commercial production of laboratory and pet rabbits are not available.



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**Appendix 1: All U.S. Rabbit Imports (Value in \$1,000; Quantity in MT or Number)**

| Country                        | Product                           | Quantity Units | 1996  |        | 1997  |        | 1998  |        | 1999  |        | 2000  |        | 2001  |        |
|--------------------------------|-----------------------------------|----------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
|                                |                                   |                | Value | Quant. | Value | Quant. | Value | Quant. | Value | Quant. | Value | Quant. | Value | Quant. |
| <b>ARGENTINA</b>               | Whole, Raw Furskins               | NO             | 177   | 419000 | 228   | 575350 | -     | -      | -     | -      | -     | -      | -     | -      |
| <b>AUSTRALIA</b>               | Yarn, <85% Angora                 | MT             | -     | -      | -     | -      | -     | -      | -     | -      | 3     | -      | -     | -      |
| <b>BELGIUM-LUXEMBOURG</b>      | Whole, Raw Furskins               | NO             | -     | -      | 215   | 753648 | 257   | 606441 | 283   | 647978 | 400   | 992189 | 152   | 274248 |
|                                | Tanned Rabbit & Hare Skins        | NO             | 8     | 15650  | 162   | 74086  | 68    | 114629 | 45    | 10052  | 41    | 12348  | 109   | 35187  |
| <b>BRAZIL</b>                  | Tanned Rabbit & Hare Skins        | NO             | 131   | 25702  | 317   | 78481  | 76    | 20600  | 24    | 2016   | 23    | 1845   | 7     | 1400   |
|                                | Whole, Raw Furskins               | NO             | 2     | 24     | -     | -      | -     | -      | 1     | 20     | -     | -      | -     | -      |
| <b>CANADA</b>                  | Live Rabbit or Hare               | NO             | 147   | 33636  | 496   | 26383  | 542   | 23426  | 644   | 55979  | 818   | 72019  | 979   | 111153 |
|                                | Fresh /Frozen Rabbit or Hare Meat | NO             | -     | 2597   | -     | 2408   | 35    | -      | 120   | -      | 204   | -      | 230   | 42     |
|                                | Yarn, <85% Angora                 | MT             | -     | -      | -     | -      | -     | -      | 31    | 551    | 10    | 599    | -     | -      |
|                                | Tanned Rabbit & Hare Skins        | MT             | 8     | 2597   | 10    | 2408   | -     | -      | 3     | 534    | 5     | 756    | 6     | 180    |
|                                | Whole, Raw Furskins               | NO             | 1     | 4387   | 11    | 196    | -     | -      | 1     | 60     | -     | 10     | -     | -      |
| <b>SRI LANKA</b>               | Carded Angora Yarn                | MT             | -     | -      | -     | -      | -     | -      | -     | -      | 2     | <1     | -     | -      |
| <b>CHINA, PEOPLES REPUBLIC</b> | Fresh/Frozen Rabbit or Hare Meat  | NO             | 981   | 158400 | 1331  | 120850 | 456   | 60000  | 521   | 53567  | 1337  | 107733 | 910   | 534    |
|                                | Tanned Rabbit & Hare Skins        | NO             | 112   | 350    | 95    | -      | 41    | -      | 34    | 50     | 87    | 39772  | 108   | 85942  |
|                                | Whole, Raw Furskins               | MT             | 2     | 464    | -     | 685    | -     | 283    | 1     | 282    | 14    | 648    | -     | -      |
| <b>CHILE</b>                   | Tanned Rabbit & Hare Skins        | NO             | -     | -      | -     | -      | 10    | 38590  | -     | -      | -     | -      | -     | -      |
| <b>CZECHOSLOVAKIA</b>          | Whole, Raw Furskins               | NO             | -     | -      | -     | -      | -     | -      | 36    | 90575  | 198   | 600306 | -     | -      |
|                                | Tanned Rabbit & Hare Skins        | NO             | -     | -      | 5     | 2001   | 3     | 1000   | 2     | 1000   | 33    | 18000  | 33    | 22533  |
|                                | Yarn, <85% Angora, NESOI          | MT             | -     | -      | -     | -      | -     | -      | -     | -      | -     | 30     | -     | -      |
|                                | Live Rabbit or Hare               | NO             | -     | -      | -     | -      | -     | -      | -     | -      | -     | -      | 4     | 250    |
| <b>FINLAND</b>                 | Tanned Rabbit & Hare Skins        | NO             | -     | -      | -     | -      | -     | -      | -     | -      | -     | -      | 1     | 36     |
| <b>FRANCE</b>                  | Whole, Raw Furskins               | NO             | -     | -      | -     | -      | 58    | 101000 | 427   | 663891 | 187   | 352249 | 114   | 401021 |
|                                | Yarn, <85% Angora, NESOI          | NO             | -     | 134833 | -     | 3340   | -     | 6      | 43    | 155    | 35    | 2240   | 14    | 39     |
|                                | Tanned Rabbit & Hare Skins        | MT             | 75    | -      | 23    | -      | 1     | -      | 6     | 203    | 35    | 165    | 14    | 139    |
|                                | Carded Angora Yarn                | MT             | -     | -      | -     | -      | -     | -      | 10    | 79     | 6     | 13     | 25    | <1     |
|                                | Yarn, <85% Angora                 | MT             | -     | -      | -     | -      | -     | -      | 33    | 434    | 1     | 10     | 18    | <1     |
|                                | Live Rabbit or Hare               | NO             | 7     | 88     | 4     | 60     | -     | -      | 11    | 181    | -     | -      | -     | -      |
|                                | Combed Angora Yarn                | MT             | -     | -      | -     | -      | -     | 13     | 183   | -      | -     | -      | 1     | -      |
| <b>GERMANY</b>                 | Tanned Rabbit & Hare Skins        | NO             | -     | -      | 11    | 846    | -     | -      | -     | 6      | 102   | 26877  | 8     | 12     |
|                                | Live Rabbit or Hare               | NO             | -     | -      | -     | -      | -     | -      | -     | -      | 4     | 51     | -     | -      |
|                                | Yarn, <85% Angora                 | MT             | -     | -      | -     | -      | -     | -      | -     | -      | 1     | -      | 1     | -      |
| <b>GREECE</b>                  | Tanned Rabbit & Hare Skins        | NO             | -     | -      | -     | -      | -     | -      | -     | -      | 10    | 1000   | -     | -      |
| <b>HONG KONG</b>               | Tanned Rabbit & Hare Skins        | NO             | -     | -      | 2     | 300    | -     | -      | 8     | 874    | 17    | 1935   | -     | -      |
|                                | Whole, Raw Furskins               | NO             | -     | -      | -     | -      | -     | -      | -     | -      | 1     | 1      | -     | -      |

| Country                   | Product                             | Quantity Units | 1996         |            | 1997         |            | 1998         |            | 1999         |            | 2000         |            | 2001         |            |
|---------------------------|-------------------------------------|----------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|
|                           |                                     |                | Value        | Quant.     | Value        | Quant.     | Value        | Quant.     | Value        | Quant.     | Value        | Quant.     | Value        | Quant.     |
| <b>HUNGARY</b>            | Whole, Raw Furskins                 | NO             | -            | -          | -            | -          | -            | -          | -            | -          | 56           | 19287      | -            | -          |
|                           | Tanned Rabbit & Hare Skins          | NO             | -            | -          | -            | -          | -            | -          | -            | -          | -            | -          | -            | 44         |
|                           | Live Rabbit or Hare                 | NO             | -            | -          | -            | -          | -            | -          | -            | -          | -            | -          | 7            | 17         |
| <b>ITALY</b>              | Tanned Rabbit & Hare Skins          | NO             | 1            | 850        | 64           | 62216      | 160          | 225271     | 91           | 139839     | 181          | 228008     | 182          | 149056     |
|                           | Combed Angora Yarn                  | MT             | -            | -          | -            | -          | -            | -          | 3            | 784        | 23           | 63         | 1            | -          |
|                           | Yarn, <85% Angora, NESOI            | MT             | -            | -          | -            | -          | -            | -          | 3            | 198        | 6            | 47         | 2            | -          |
|                           | Carded Angora Yarn                  | MT             | -            | -          | -            | -          | -            | -          | 29           | 15         | 4            | 13         | 3            | -          |
|                           | Yarn, <85% Angora                   | MT             | -            | -          | -            | -          | -            | -          | 7            | 76         | 3            | 7          | 3            | -          |
| <b>KOREA, REPUBLIC OF</b> | Tanned Rabbit & Hare Skins          | NO             | -            | -          | -            | -          | -            | -          | -            | -          | 61           | 25067      | -            | -          |
| <b>NETHERLANDS</b>        | Tanned Rabbit & Hare Skins          | NO             | -            | -          | 9            | 360        | -            | -          | -            | -          | -            | -          | -            | -          |
| <b>NORWAY</b>             | Yarn, <85% Angora                   | MT             | -            | -          | -            | -          | -            | -          | 4            | <1         | 2            | 155        | -            | -          |
| <b>NEW ZEALAND</b>        | Fresh or Frozen Rabbit or Hare Meat | MT             | 20           | 3          | 52           | 16         | -            | -          | -            | -          | -            | -          | -            | -          |
|                           | Tanned Rabbit & Hare Skins          | NO             | -            | -          | 4            | 3          | -            | -          | -            | -          | -            | -          | -            | -          |
| <b>PERU</b>               | Yarn, <85% Angora, NESOI            | MT             | -            | -          | -            | -          | -            | -          | -            | -          | -            | -          | 3            | -          |
|                           | Yarn, <85% Angora                   | MT             | -            | -          | -            | -          | -            | -          | -            | -          | -            | -          | 3            | -          |
| <b>POLAND</b>             | Tanned Rabbit & Hare Skins          | NO             | -            | -          | -            | -          | -            | -          | -            | -          | 18           | 11910      | 9            | 4975       |
| <b>PORTUGAL</b>           | Whole, Raw Furskins                 | NO             | 72           | 222104     | 78           | 407994     | 60           | 559904     | 86           | 398000     | 77           | 559000     | -            | -          |
| <b>SOUTH AFRICA</b>       | Combed Angora Yarn                  | MT             | -            | -          | -            | -          | -            | -          | -            | -          | 8            | 214        | -            | -          |
|                           | Yarn, <85% Angora                   | MT             | -            | -          | -            | -          | -            | -          | 3            | <1         | -            | -          | -            | -          |
| <b>SPAIN</b>              | Tanned Rabbit & Hare Skins          | NO             | 905          | 1339425    | 795          | 1136633    | 694          | 1116001    | 407          | 813618     | 499          | 628718     | 642          | 920228     |
|                           | Whole, Raw Furskins                 | NO             | 64           | 100001     | 73           | 65871      | 24           | 40000      | 18           | 26000      | 33           | 187328     | 27           | 45635      |
| <b>TURKEY</b>             | Tanned Rabbit & Hare Skins          | NO             | -            | -          | -            | -          | -            | -          | -            | -          | 59           | 25908      | -            | -          |
|                           | Yarn, <85% Angora                   | MT             | -            | -          | -            | -          | -            | -          | 1            | 28         | -            | -          | -            | -          |
| <b>TAIWAN</b>             | Tanned Rabbit & Hare Skins          | NO             | -            | -          | 21           | 30000      | -            | -          | -            | -          | -            | -          | -            | -          |
| <b>UNITED KINGDOM</b>     | Carded Angora Yarn                  | NO             | -            | -          | -            | -          | -            | -          | 44           | 172        | 19           | 14         | -            | -          |
|                           | Tanned Rabbit & Hare Skins          | MT             | -            | -          | -            | -          | -            | -          | 7            | 112        | 4            | 1          | -            | -          |
|                           | Fresh or Frozen Rabbit or Hare Meat | MT             | 4            | <1         | 5            | <1         | 2            | <1         | 16           | 2          | -            | -          | -            | -          |
|                           | Whole, Raw Furskins                 | NO             | -            | -          | 4            | 85         | 47           | 164250     | -            | -          | -            | -          | 1            | 4          |
|                           | Combed Angora Yarn                  | MT             | -            | -          | -            | -          | -            | -          | 13           | 69         | -            | -          | -            | -          |
|                           | Yarn, <85% Angora, NESOI            | MT             | -            | -          | -            | -          | -            | -          | 1            | 1          | -            | -          | 3            | -          |
| <b>UKRAINE</b>            | Tanned Rabbit & Hare Skins          | NO             | -            | -          | -            | -          | -            | -          | -            | -          | 1            | 1000       | 5            | 2500       |
| <b>Total</b>              |                                     |                | <b>2,717</b> | <b>468</b> | <b>4,013</b> | <b>702</b> | <b>2,535</b> | <b>291</b> | <b>3,030</b> | <b>307</b> | <b>4,629</b> | <b>684</b> | <b>3,629</b> | <b>576</b> |

**Appendix 2: AWA Licensing and Registration for Rabbits**

| <b>Animal Care Licensing and Registration Relevant to Rabbits</b>  |   |  |   |
|--|---|--|---|
| <b>Category</b>  | <b>Who Needs a License</b>  | <b>Type of Licenses</b>  | <b>Exemptions</b>   |
| Dealers  | <ol style="list-style-type: none"> <li>1. Breeders breeding pets for wholesale trade</li> <li>2. Importers, buyers, sellers or traders of laboratory animals - direct or through other dealers; including bunchers and direct research facility traders</li> <li>3. Breeders of Laboratory Animals</li> <li>4. Animal Brokers - dealers of regulated laboratory animals that do not take possession</li> <li>5. Sellers of dead animals including blood, serum or parts</li> <li>6. Prize Animals - Either for a prize or sold for a prize</li> </ol> | <p>Class A - Sell only animals bred and raised by them</p> <p>Class B - Sell both animals bred by them and others</p>                | <ol style="list-style-type: none"> <li>1. Retail Pet Stores - Sells domestic animals to pet owners</li> <li>2. Retail Chain Stores - Sells domestic animals to pet owners, the entire chain must qualify for the exemption</li> <li>3. Direct Sales - Sells domestic pets direct to pet owners, regardless of sales volume</li> <li>4. Hobby Breeders - Gross sales of less than \$500 per year</li> <li>5. Private and Public Pounds that do not resale animals</li> </ol> |
| Exhibitors   | <ol style="list-style-type: none"> <li>1. Petting Zoos - Even if the petting zoo is in conjunction with an agricultural fair or show</li> <li>2. Roadside Zoos</li> <li>3. Promotional Exhibits - if animal is used to promote or advertise goods and services</li> </ol>   | Class C  | <ol style="list-style-type: none"> <li>1. Private Collections - Not exhibited to the public</li> <li>2. Farm Animal Exhibition - at agricultural shows, fairs and exhibits</li> <li>3. Pet Shows</li> </ol>   |
| Transporters   | <ol style="list-style-type: none"> <li>1. Carriers - Including airlines, railroads, motor carriers, shipping lines</li> <li>2. Intermediate Handlers - Takes custody of animals to transport them on public carriers</li> <li>3. Contract Carriers - Transports animals by contract or agreement. Do not meet requirements for 1 or 2, but do transport animals for profit or compensation</li> </ol>   | <ol style="list-style-type: none"> <li>1. Carrier</li> <li>2. Intermediate Carrier</li> <li>3. Dealer</li> </ol>                     | <ol style="list-style-type: none"> <li>1. Animal Taxis - Transporters of private pets to and from the veterinarian, groomer, etc.</li> </ol>  |
| Research   | <ol style="list-style-type: none"> <li>1. State-Owned and Local Government Facilities</li> <li>2. Drug Firms</li> <li>3. Teaching Institutions - college or university medical schools, veterinary schools and biology departments</li> <li>4. Diagnostic Laboratories</li> </ol>   | Register with the USDA as a Research Facility. Parent organization must register if the institution is part of a larger organization | <ol style="list-style-type: none"> <li>1. Federal Facilities - not inspected, but must still comply with all standards of animal care</li> <li>2. School Laboratories - elementary, secondary and others below college level</li> <li>3. Agricultural Research Institutions - including rabbits as livestock being investigated for food and fiber.</li> <li>4. Institutions Using Only Biologic Specimens - Only dead, whole animals</li> </ol>                            |
| All information for this table taken from the Licensing and Registration Under the Animal Welfare Act: Guidelines for Dealers, Exhibitors, Transporters and Researchers. <a href="http://www.aphis.usda.gov/oa/awlicreg.html">http://www.aphis.usda.gov/oa/awlicreg.html</a> |   |  |   |

### **Appendix 3: A Brief Look at a Rabbit Show**

ARBA shows are normally hosted on weekends, with a different show being offered each day and/or multiple shows in one day. Both youth and open shows are normally conducted during one weekend. An ARBA rabbit owned by a youth showman cannot be entered in the open class of the same show. However, if multiple shows are held together the youth can enter the youth class in one show and the open class in another show. The same rabbit cannot be entered in both a youth and open show on the same day. It is not acceptable for an adult to show a youth rabbit in the youth show, even if they are the parent of the youth owner or a partial owner of the rabbit.

#### Rabbit Classes

Showing a rabbit is based on the combination of age, sex, weight, and color of the rabbit. Class refers to the sex/age combinations of Senior Buck, Senior Doe, Junior Buck and Junior Doe. Large rabbit breeds (i.e. Flemish Giant, Cinnamon) also have Intermediate Bucks and Does. Junior Bucks and Does are under 6 months of age, and many breeds also have weight requirements. If a junior rabbit exceeds the maximum junior weight, then they must compete as a senior. Small senior rabbits may not compete as juniors. Intermediates or 6/8s are between 6 and 8 months of age and are also usually subject to a weight constraint. Again, large, young rabbits may compete up a class, but overweight senior rabbits are disqualified.

#### Judging Classes

Classes are judged first within a single variety. Variety refers to the fur color of the rabbit. There are a number of possibilities including opal, beige, tortoise, cream, tan, self, agouti, seal, sable, chocolate, black, red-eyed-white, blue-eyed-white, silver, lilac, squirrel, broken and chinchilla. Most breeds also recognize color varieties that are broken, meaning the above colors in combination with white. There are a number of other colors not mentioned here, and acceptable colors are established in each breed standard. If a breed has a large number of varieties, they can be grouped. For instance, the Netherland Dwarf breed has five groups: Self group, Shaded group, Agouti group, Tan Pattern group and an All Other Varieties (AOV) group. The Self group contains all rabbits of a single color all over their body and the Agouti group contains all the rabbits with hair banded in three colors (agouti), in various different colors.

The order of judging within each breed will take all the animals of each class in a variety beginning with Senior Bucks and ending with Junior Does. Once all of the classes in the variety are judged then best of variety (BOV) is chosen from the class winners. A best of opposite sex of variety (BOSV) winner is also chosen. For the breeds with groups, once the rabbits have competed within their varieties the BOV and BOSV compete against all the other BOV and BOSV rabbits in that group. Then best of group (BOG) and best of opposite sex of group (BOSG) compete amongst themselves for the best of breed (BOB) and best of opposite sex of breed (BOS). If the breed does not have groups, then the variety winners compete for the BOB title. Once breed winners are chosen, they compete for the best in show title against all the other breed winners. Other special awards may also be given, including Best Junior and best Senior for each breed and best overall showing for all rabbits (best display).

Other competitions outside of the breed type also are competed at a rabbit show. All breeds may compete in either a normal fur or commercial fur class, and the Angora rabbits have wool competitions. These competitions are open only to animals that also competed in the breed

competition. Commercial type rabbits can also compete in the meat pen and single fryer competitions. The meat pen has 3 same aged animals exhibited together and are judged, among other characteristics, on their uniformity. Single fryers are judged on their type, flesh condition and fur. Roaster and steeper classes may also be judged, with similar guidelines to the single fryers. The non-breed competitions have small participation compared to the breed competitions, and often are not held.

### Legs

Owner/exhibitors are awarded *legs* that are derived from the rabbits placing during the show. It takes 3 *legs* awarded at 3 different shows under 2 different judges, with at least 1 leg awarded as an intermediate or senior, and senior age/weight for a rabbit to become a *Grand Champion*. Once a rabbit is awarded their grand champion certificate they cannot receive another. Even though the additional legs do not count towards an additional certificate, the individual breed organizations use them to track the most successful rabbits. These "sweepstakes" contest usually culminate with an award for the breeder/rabbit with the most points in a year. *Legs* may be awarded at any ARBA sanctioned show where at least 5 rabbits shown by 3 different owners compete. *Legs* are awarded for first place in class competitions up to the Best in Show competition (BOV, BOSV, BOG, BOSG, BOB, BOSB, BIS). Sweepstakes points are multiplied by the number of rabbits participating by a fractional multiplier, with the multiplier increasing as the round of competition increases.

### Registration

Rabbits that reach senior age or weight may be registered with the ARBA. Rabbits are not required to be registered to compete in an ARBA show and cannot be registered before they reach senior age (6 or 8 months depending on breed). Each rabbit awarded a grand champion certificate must be registered with the ARBA. To be registered the owner must be a current ARBA member, have tattooed their rabbits in their left ear with a number of their choosing, present a 3 generation pedigree, and pay \$4.00. The registrar checks the pedigree and the rabbit for general, health or breed specific disqualifications, and weighs the animal. Then the registration form is completed and forwarded to ARBA for filing. A registration tattoo is applied to the rabbit's right ear.

### The Show Ring

Depending on the size and length of the show the rabbits may be cooped during the show together in one area, or brought into the show arena in carriers for the duration of the show. All rabbits are brought to temporary or judging coops at the judging table when it is time for their class to compete. Each rabbit is removed in turn from the coop and inspected by the judge. The judge will disqualify rabbits for faults or poor health, judging the remaining rabbits against the breed standard and the other rabbits. Once the class is completed the rabbits are returned to their own coops or carriers and the next class is brought to the table and placed in the same judging coops. Each exhibitor is responsible for maintaining their own animal and for cleaning their cages during the duration of the show. Most exhibitors travel by car with their rabbits to shows. The national show is usually the only show that rabbits are flown to, and depending on its location most exhibitors choose to drive anyway because of the difficulty in flying with multiple rabbits.

Most rabbit breeds, except for the wool breeds, require minimal grooming even when in show form. The long-haired breeds need extensive and daily grooming, and their wool will fly around the show area unless immediately caught. What grooming is necessary will take place on the show floor and angora exhibitors utilize vacuums/blowers to blow out their animals wool. Rabbits are not washed on the show room floor, baths being unnecessary for rabbits. Most exhibitors groom their rabbits by rubbing the rabbit with damp hands to remove loose hairs. Fixatives or other wool or fur enhancements (including clipping or trimming) are not allowed in competition.

At the end of the show the exhibitors pack up their rabbits and return home. Rabbit shows, especially the national convention, provide an opportunity for breeders to purchase rabbits or make deliveries on prearranged sales. Imported rabbits may be delivered to shows, especially the national show, since they represent a single communal location that eases delivery logistics. Raffles are often sponsored where rabbits are offered as the prize, with the winner taking home a new rabbit. Though it is often suggested to quarantine rabbits returning from shows that does not always happen. While most breeders realize the importance of quarantining, it is not always conducted due to space and equipment constraints.



#### **Appendix 4: List of Abbreviations**

4H - A youth service and leadership program sponsored by the Extension Service

AC - Animal Care, APHIS-VS organization that monitors and enforces the Animal Welfare Act

AWA - Animal Welfare Act

ARBA - American Rabbit Breeders Association

APHIS - Animal and Plant Health Inspection Service

APPMA - American Pet Products Manufacturing Association

EBHS - European Brown Hare Syndrome (a similar disease to RHD but only infecting hares)

FFA - Future Farmers of America

OIE - Office International des Epizooties.

RCD - Rabbit Calicivirus Disease

RCVD - Rabbit Calici-Virus Disease

RHD - Rabbit Hemorrhagic Disease (name used by the OIE)

RHDV - Rabbit Hemorrhagic Disease Virus (used interchangeably with RHD but OIE uses this distinctively to refer to the virus that causes RHD)

USDA - United States Department of Agriculture

VHD - Viral Hemorrhagic Disease

VHDR - Viral Hemorrhagic Disease of Rabbits

VS - Veterinary Services; branch of USDA-APHIS

## **Appendix 5: Glossary**

**Buck** - Male, unaltered rabbit. Bucks reach sexual maturity later than female rabbits, from five to 7 months. Large breeds reach sexual maturity later than small breeds.

**Bunny Runner** - A person who picks up or takes receipt of rabbits for delivery to an end market. The Bunny Runner may pay for the rabbits themselves (wholesale) and resale them at the terminal market. Some bunny runners may pay the slaughter price for meat rabbits directly to the producer and be reimbursed through an individual arrangement with the slaughter plant. The Bunny Runner may collect rabbits from a number of different locations to satisfy an order.

**Cull** - To remove a rabbit that does not meet the quality standards of the herd. Culling does not exclusively refer to killing unsuitable stock. In some instances culled rabbits are consumed by the producer, but that is not an option with some of the small hobby breeds. In this case, culling refers to the removing from the herd and the culled rabbit may be sold as a pet or to other hobbyists.

**Doe** - Female breeding rabbit. Does reach sexual maturity from 4.5 months to six months, large breeds mature later than small breeds.

**Fancy** - Show rabbits. Especially the small rabbits that have no commercial applications.

**Fryer** - Young rabbit (8-12 weeks) marketed for meat

**Fuzzy** - A dead, furred kit.

**Hare** - Long eared, long legged hopping animals. Young are born furred and open-eyed.

**Kindle** - To give birth to rabbits

**Kits or Kittens** - New-born rabbits

**Pelt** - The rabbit skin with fur still attached

**Pinkie** - A dead, furless kit.

**Rabbit** - Animal with large front teeth, short tail and large hind legs. Length of ear varies, but is usually longer than it is wide. Rabbits have shorter ears and legs than hares. Rabbits give birth to blind and furless young.

**Rabbitry** - The common term for a rabbit production facility. Rabbitries can house commercial or hobby herds and may be indoor, outdoor or any combination in between.

**Wool** - Rabbit fur. Technically all rabbits have wool and not fur covering their body. Angora wool is a particularly long wool (three inches or more) that has been bred for over time.

## Appendix 6: Industry Groups and On-Line Organizations or Groups

**American Rabbit Breeders Association (ARBA):** "The American Rabbit Breeders Association, Inc. is an organization dedicated to the promotion, development and improvement of the domestic rabbit and cavy. With over 30,000 members throughout the United States, Canada, and abroad, our members range from the pet owner with one rabbit or cavy to the breeder or commercial raiser with several hundred animals. Each aspect of the rabbit and cavy industry, whether it be fancy (for exhibition), as a pet, or for commercial value, is encouraged by our organization."

**Website:** [www.arba.net](http://www.arba.net)

Publishes the Official Guidebook To Raising Better Rabbits, ARBA Yearbook, Standard of Perfection and Domestic Rabbits Magazine. Membership includes a copy of the books and a subscription to Domestic Rabbits. Membership also allows an exhibitor to register their senior rabbits and receive Grand Champion Certificates. ARBA sanctions rabbit shows throughout the U.S. and also sanctions rabbit shows at county and state fairs when requested. ARBA also certifies the judges and registrars that manage and evaluate the entrants to rabbit shows. The ARBA sponsors an annual national convention that can draw more than 20,000 rabbit entries. Non-members may participate in ARBA sanctioned competitions.

**Etherbun:** A Listserv. "Devoted to the health, care and behavior of domestic, companion rabbits. Please be aware in advance that discussion of breeding rabbits for \*any\* purpose--including pets or show--is NOT ALLOWED on EtherBun."

**Website:** <http://groups.yahoo.com/group/etherbun/>

Etherbun is very active, with a 1400 members, many of whom participate. Etherbun is a moderated listserv that carefully directs posts to relevant topics, all of which are related to the care of pet rabbits.

**House Rabbit Society (HRS):** "An all-volunteer, non-profit organization that rescues rabbits and educates the public on rabbit care and behavior."

Board of Directors Chairperson: Marinell Harriman

**Website:** [www.rabbit.org](http://www.rabbit.org)

Publishes the House Rabbit Journal sent to all members of HRS; provides on-line information about rabbit care, advocates for appropriate care and feeding for pet rabbits, discourages the sale of rabbits at Easter, encourages the adoption of pet rabbits from shelters or humane societies, encourages neutering or spaying of pet rabbits.

**Professional Rabbit Meat Association (PRMA):** "A non-profit organization for the purpose of providing professional guidance, information, current news, advice and the exchanging of ideas on the rabbit meat industry for the serious growers, processors, brokers, buyers and those desiring to participate in the rabbit meat industry, regardless of size of operation."

**Website:** [www.prma.org](http://www.prma.org)

Publishes the bi-monthly PRMA Newsletter listing prices and market weights. The Newsletter also reprints journal articles and gathers industry related popular press information in one place. PRMA's monitoring of slaughter price for live rabbits is the only information on Rabbit marketings collected nationally and is supplied by Dr. James McNitt of Southern University and the Vice-President of the PRMA. PRMA also hosts chats periodically with industry experts and

sponsors a members-only listserv. The PRMA's President, Pat Lamar, is an active proponent of the commercial rabbit industry and has published a succinct on-line overview of the various commercial (for profit) rabbit industries active in the U.S. [<http://www.3-cities.com/~fuzufarm/>]

**Rabbit Education Society (RES):** "We welcome breeders and pet owners interested in animal welfare, not animal rights...There is far too little rabbit information currently available and we want to change that. These pages will strive to be a source of accurate and complete pet rabbit care information. It will also be a source of information for breeders to pass onto their pet rabbit buyers and also serve to inform all about what is going on out in the rabbit world...We welcome articles about pet rabbits and responsible ownership."

**Website:** <http://www.geocities.com/Heartland/Valley/1155/RES.html>

This website covers the following topic areas: 1.) Rabbit Care Information 2.) Guidelines For Show Rabbit Breeders 3.) Rabbit Shelter & Abandonment Information 4.) Minimizing Owner Surrender 4.) National Shelter Census 5.) Rabbit Legislation. Corrine Fayó owns the website and conducts surveys of breeders and shelters to clarify the actual activities of rabbit breeders for use in animal welfare discussions. A Rabbit Education Society listserv (<http://groups.yahoo.com/group/Rabbit-Ed-Society/>) is also moderated by Corrine Fayó and addresses the topic of animal rights vs. animal welfare from the rabbitry perspective.

**Rabbit Information Service (RIA; Australia):** A vast array of articles and information about all aspects of the rabbit industry. The web site covers topics specific to Australia, as well as addressing research, concerns and the industry groups in the U.S. The most recently posted information is regarding RHD and the spread of the disease through Australia to control the pest rabbit (*O. cuniculus*) population. The information presented is biased toward the protection of pet rabbits.

**Website:** <http://members.iinet.net.au/~rabbit/rabbit.htm>

**Rabbit Web:** "The information you need to raise and care for your rabbits...Get advice on how to raise your rabbits and bunnies on Rabbit Web. We have informative articles, cute bunny pics, and lots of savvy bunny owners on the discussion board and in chat groups."

**Website:** <http://rabbitweb.net/>

Publishes the Rabbit Web Zine and sponsors a website dedicated to breeding, show and pet rabbit owners. Articles contributed by active members of the rabbit web discussion board (<http://www.tcims.com/rabbitweb/index.cgi>) and the Rabbit Web Zine, a chat room (<http://www.rabbitweb.net/cgi-bin/interchat.exe>), book reviews, pictures, advertisements, extensive listing of personal rabbit related websites and the ins and outs of showing rabbits are some of the areas addressed by Rabbit Web.

**Show Bunny:** "ShowBunny initially began as an internet mailing list for people interested in all aspects of breeding and showing bunnies. Over the years, ShowBunny has grown. Today, ShowBunny consists of a family of internet mailing lists, as well as an extensive website."

**Website:** <http://www.showbunny.com/>

Show Bunny is not affiliated with the ARBA, however they are a popular forum for information about all aspects of rabbit breeding and showing. Show Bunny provides an extensive listing of rabbit breeders personal websites and a very active classifieds board for trade in all aspects of

rabbits and products. Show Bunny also hosts the very active All About Rabbits discussion forum ([http://www.showbunny.com/boards/forum.asp?forum\\_id=1&forum\\_title=All+About+Rabbits](http://www.showbunny.com/boards/forum.asp?forum_id=1&forum_title=All+About+Rabbits)).

**Southern Commercial Rabbit Breeders Association, Inc. (SCRBA):** Goals of the SCRBA are the, "educating and sharing of rabbit husbandry practices with an emphasis on the Southern environment and market demands. Production stability through farmer networking and sharing of the best management practices. Providing a forum for the exchange of ideas, information and technology. Monitoring of foreign product competition. The development of relationships with governmental and university systems."

**Website:** <http://www.fl-ag.com/rabbits/index.htm>

The SCRBA sponsors an annual educational workshop in the fall and a separate annual conference focusing on all issues from breeding rabbits to marketing rabbit meat. SCRBA publishes the Commercial Rabbit and provides the magazine with membership. The SCRBA works to ensure that there is rabbit processing and market opportunities available to their members.

**World Rabbit Science Association (WRSA):** "The WRSA is an international association created in Paris in 1976...It's main objectives are : To facilitate the exchange of knowledge and experience among persons in all parts of the World who are contributing to the advancement of various branches of the rabbit industry. To promote the extension of knowledge by encouragement of teaching, scientific research, practical experimentation, the collection and publication of statistics and documents in relation with rabbit production. To promote World Rabbit Congresses alone or in cooperation with other international bodies. To co-operate with FAO and any other World Bodies interested in rabbit meat, pelt or fur production."

**Website:** <http://www.etsia.upv.es/wrsa/english/main.htm> [English version]

Publishes the refereed World Rabbit Science Journal and sponsors the World Rabbit Congress every 4 years. World Rabbit Science is published four times a year and summaries of the recent articles are available from the World Rabbit Science Journal order page (<http://www.rabbit-science.com/uk-page3.htm>). The next World Rabbit Congress will be held in 2004 in Cancun, Mexico. Abstracts for papers presented at past Congresses are published in World Rabbit Science.

**World Rabbit Science Association - American Branch (WRSA-AB):** The American Branch (WRSA) has the mission of promoting the exchange of information relating to topics of interest to rabbit scientists, breeders, project managers, extensionists, and others with an avid interest in rabbit production. This includes meetings, newsletters, journals and line forums (in addition to the statement for the WRSA).

**Website:** <http://users.tamuk.edu/kfsdl00/abwrsa.html>

WRSA-AB sponsors a list-serv for rabbit science related topics and supports the activities of WRSA. WRSA-AB also hosts their own conferences and concentrates on developing commercial rabbit production in the Americas.



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