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Directions of use of rabbits and chinchillas - breeds and color varieties and their participation in breeding programs

Modul no.: Precision Livestock Farming

Prof. dr hab. Stanisław Socha
Siedlce University of Natural Sciences and Humanities
Institute of Animal Sciences and Fisheries
Faculty of Agrobioengineering and Animal Husbandry

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Chinchilla – *Chinchilla lanigera*
Order - Rodentia

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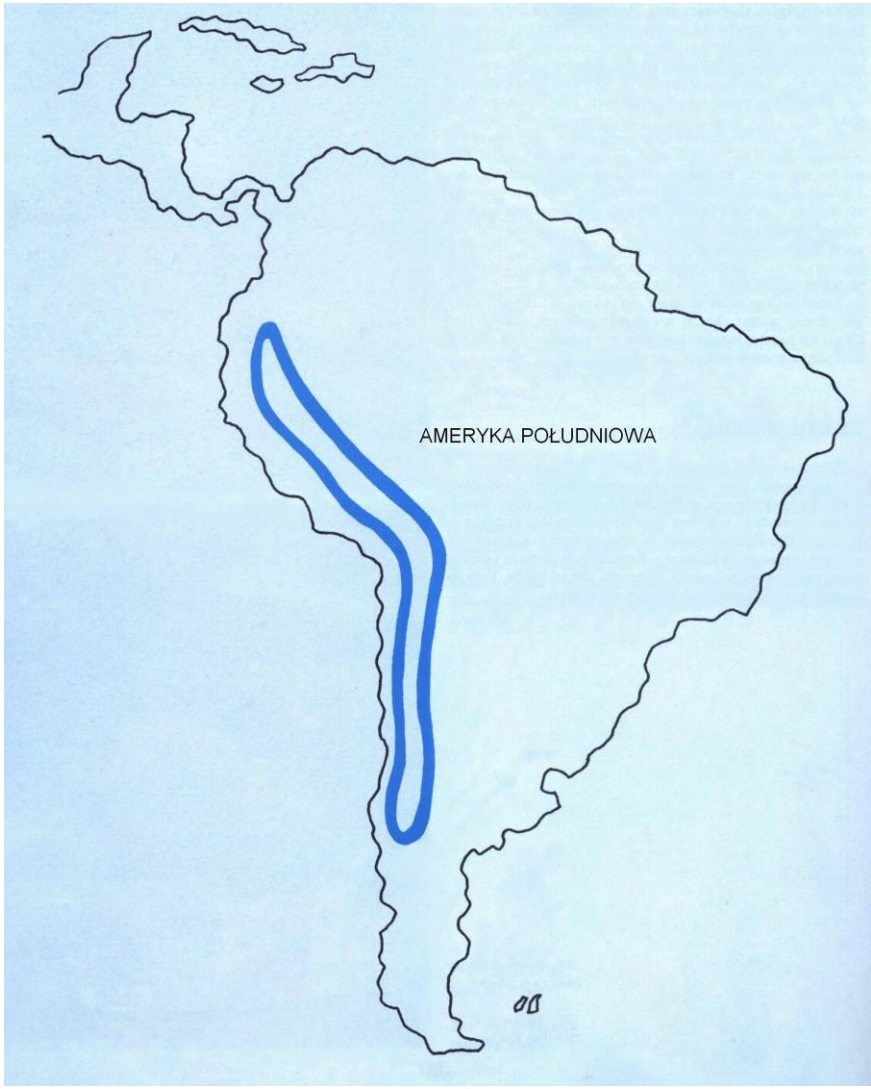
Origin

South America (Chile, Bolivia, Argentina, mountainous areas - Andes 3000-4000 m above sea level).

Another living species is short-tailed chinchilla (*Chinchilla chinchilla,* formerly known as *Chinchilla brevicaudata*). Its subspecies - the most valuable - king chinchilla became extinct.



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Characteristic

The long-tailed chinchilla is used in breeding. Dense, fluffy fur coat, ash-steel gray (black) colour with a white belly.

Body weight of adult animals 400-700 g, length 20-37 cm, tail 9-17 cm. They live about 15 years, sexual maturity at 6-8 months, the ability to breed up to about 8 years.

The purpose of breeding chinchillas: fur animals, amateur breeding, pets.

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Chinchilla farm - large-scale

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A female chinchilla with her young

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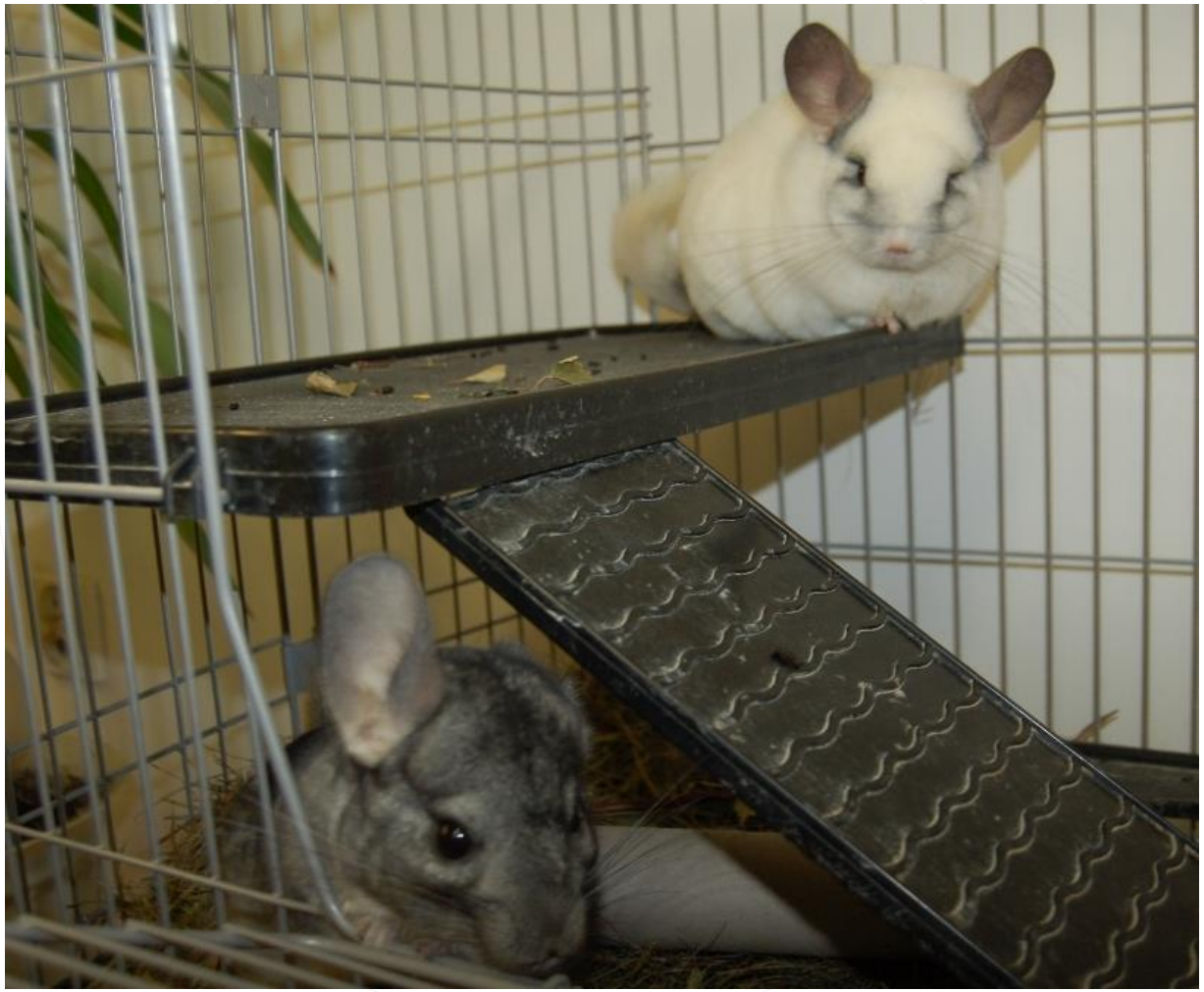
Amateur-bred chinchillas - Wilson white and standard varieties



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The history of chinchilla breeding in Poland

- In Poland, the breeding initiated in 1956, by Wł. and Elwira Rżewski in Grywałd (Pieniny).
- The development of breeding in recent years (about 12,000 furs)

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Characteristics of coat and color varieties of chinchillas

- Guard hairs and downy hairs, vibrissae on the tail and cheeks
- The length of downy hairs varies, on the back it has 21-28 mm. A bundle of 20-30 downy hairs grow from one bulb.
- Guard hairs are 1-3 mm longer than downy hairs and do not have a white zone, they are characterized by a darker color.
- There are about 20,000 of hairs per 1 cm2 of chinchilla (back)

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Color variations

- **Standard** - gray on the back and sides and white on the belly. (Participation of three types: La plata (stocky type), Costina (lighter) and Roton (smaller, beautiful coat).
- **Other color varieties** are mutations of the standard.
- White:

- albino (cc),
- not-albino (cn cn) - woolly coat,
- Wilson white (Ww) - heterozygous → W → lethal gene; black eyes and black tips of the ears, can be white, Platinum or mosaic. Platinum is most valuable.

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Beige varieties

- Tower Delany (Pw -)
- Beige Wellman (pr pr)
- Beige Polish (pp)

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- Sapphire (ss),
- Carbon variety (bb),
- Gunning Black Velvet (Bl bl) - It is believed to be the most valuable of the color varieties. However, it requires crossing with standards.

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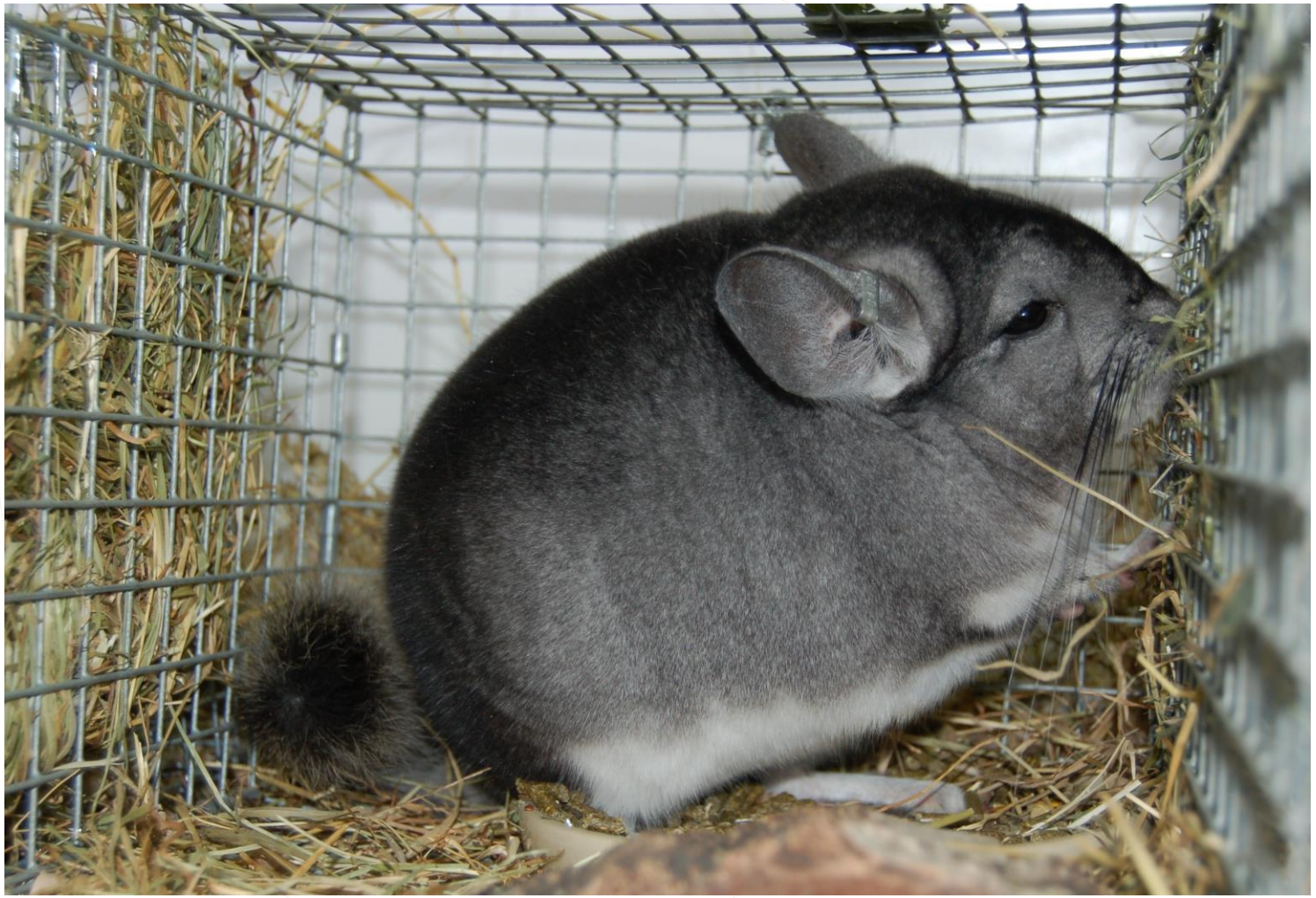
The Standard Grey



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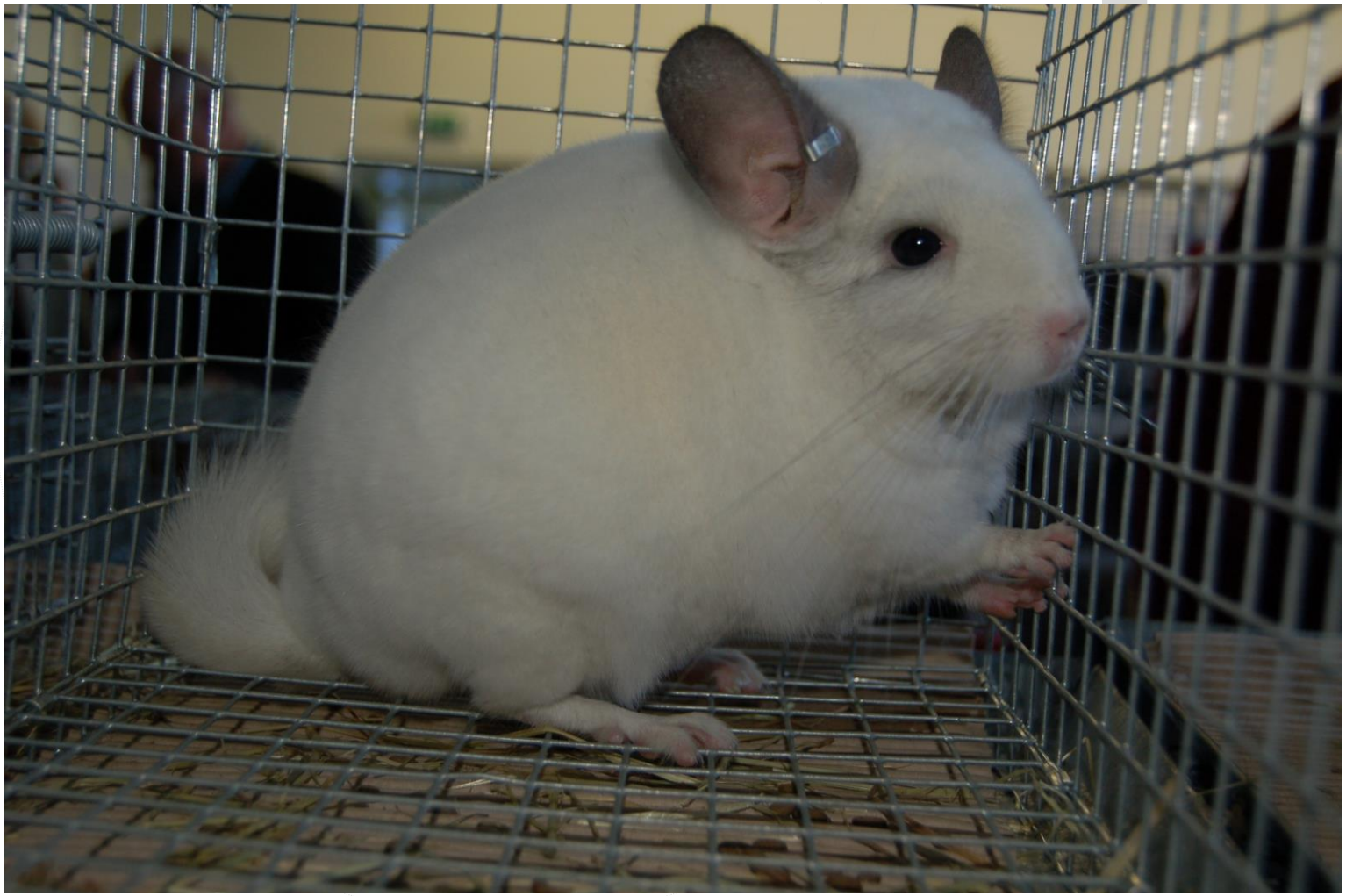
Wilson White



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Black Velvet

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Polish beige – darker variety

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Polish beige – light beige variety

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Sapphire chinchilla

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Blue Diamond

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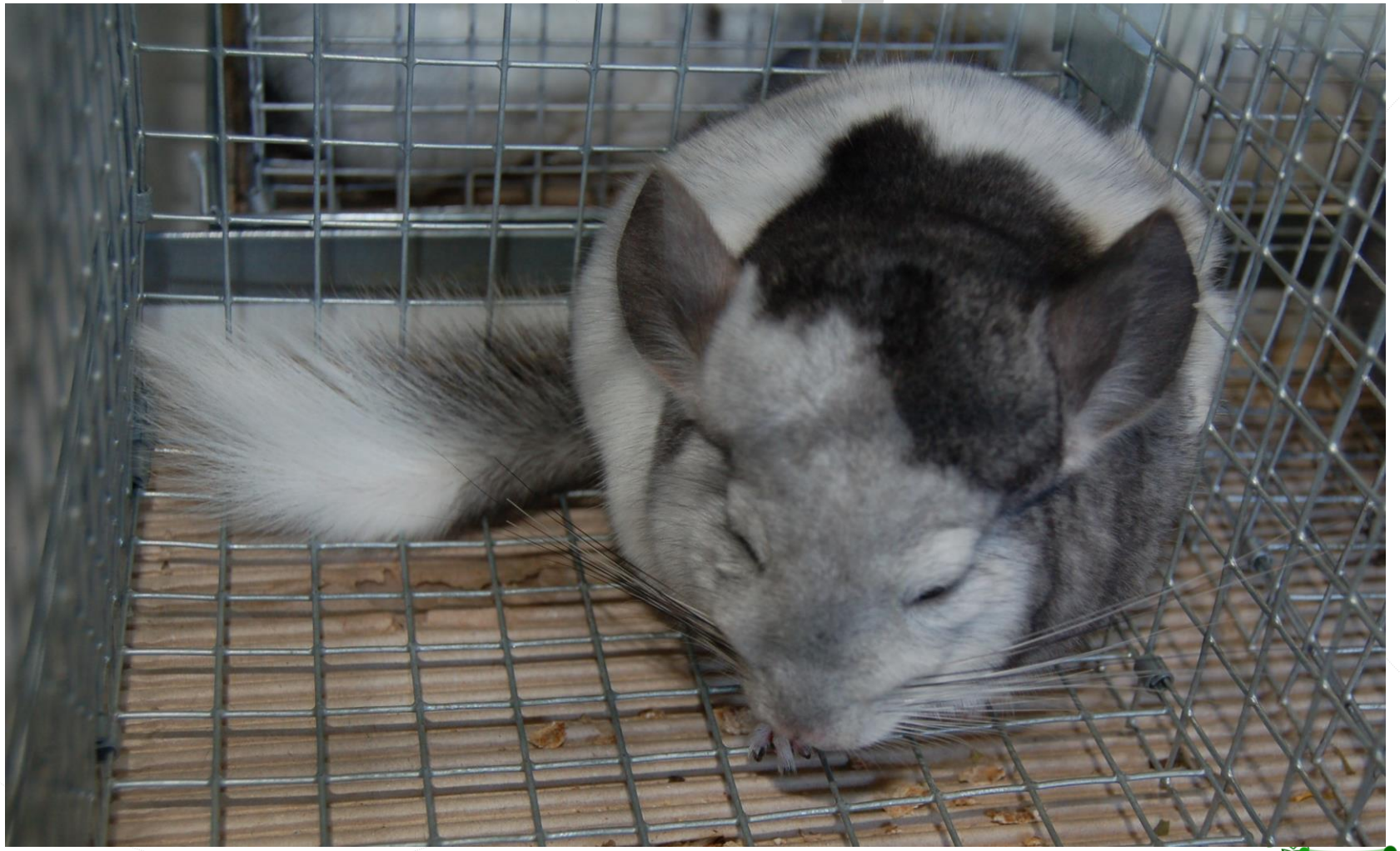
White Ebony Extreme Mosaic



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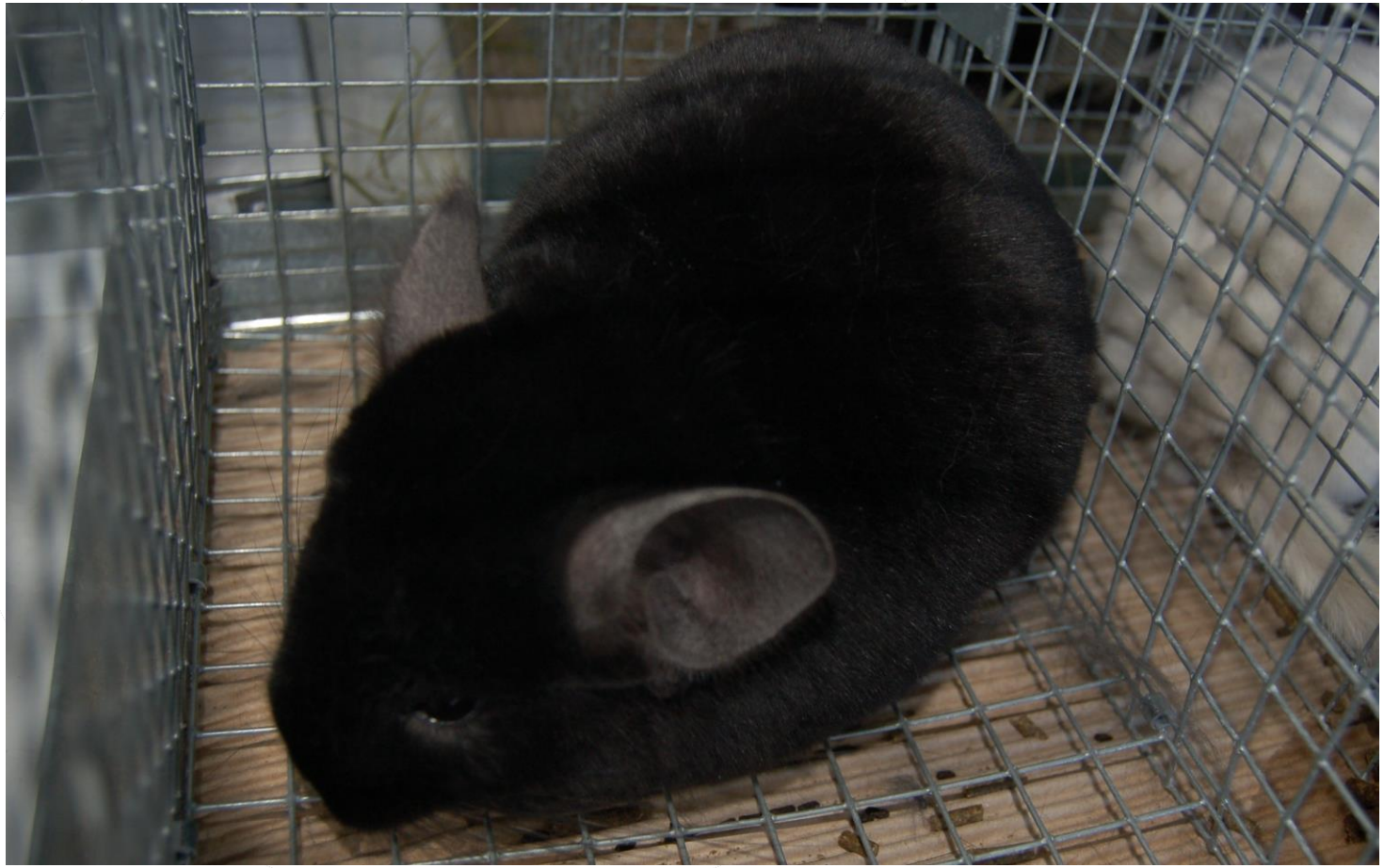
Extra Dark Ebony



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Pink White

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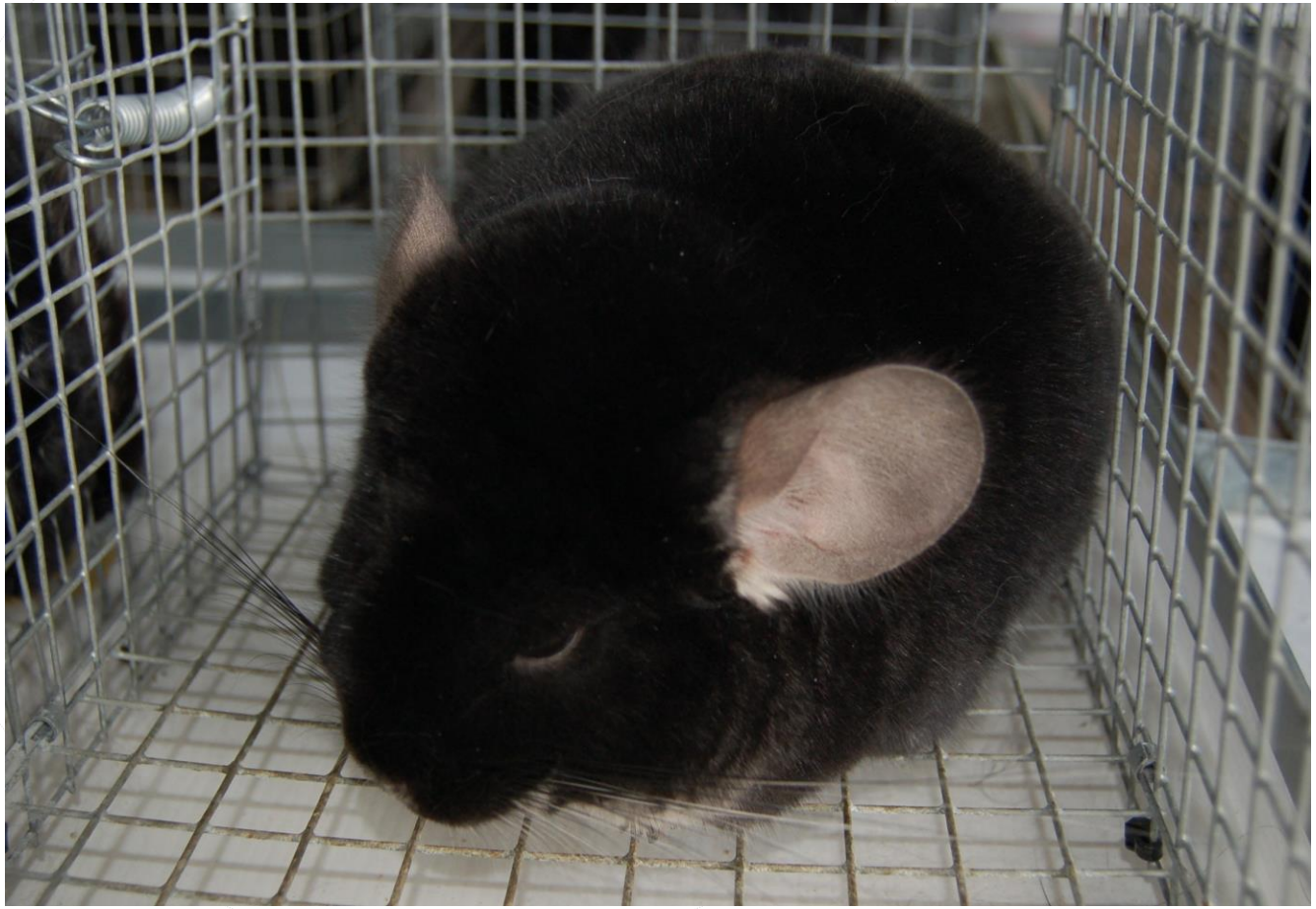
Black Pearl



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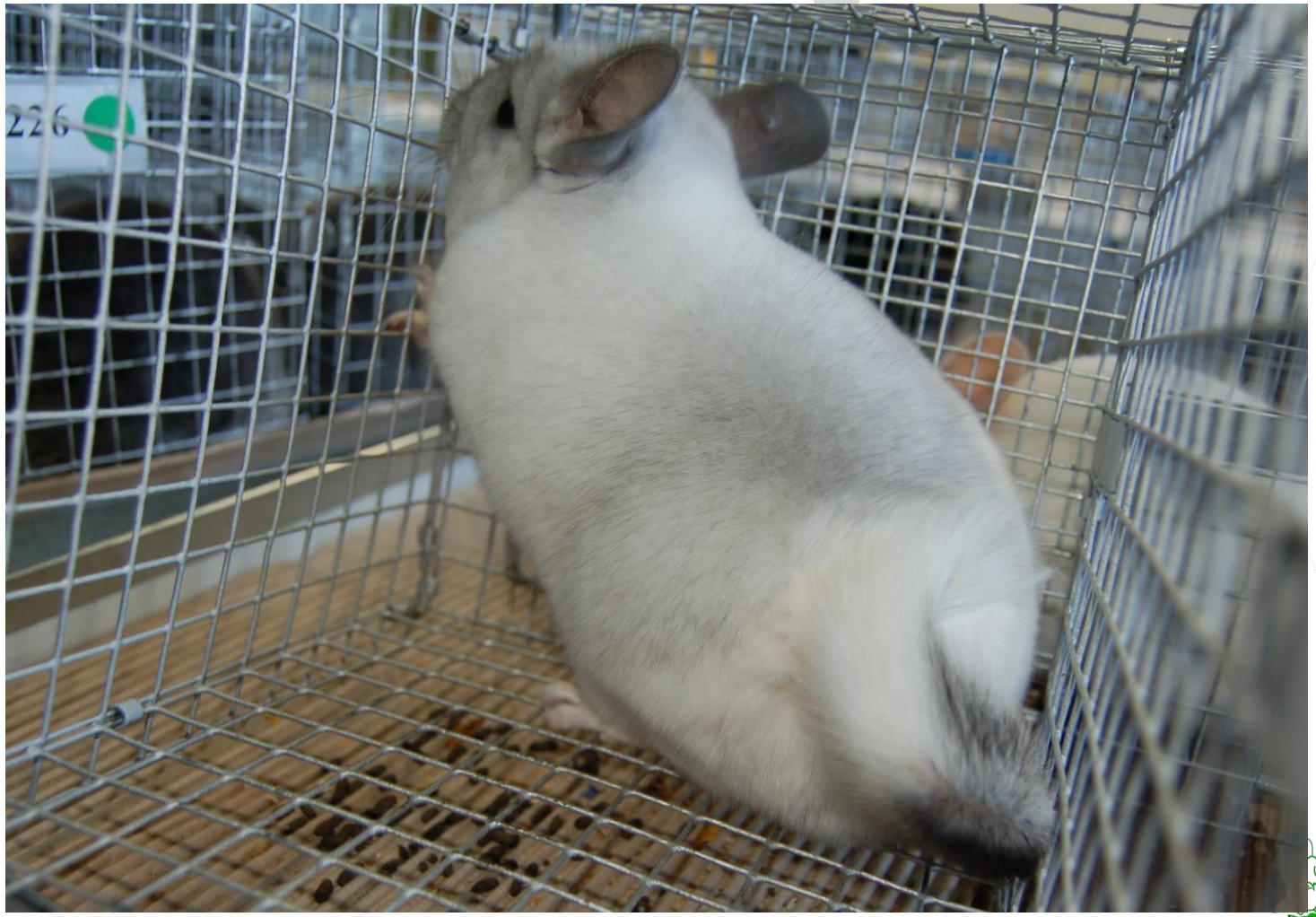
White Ebony



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Standard Royal Persian Angora

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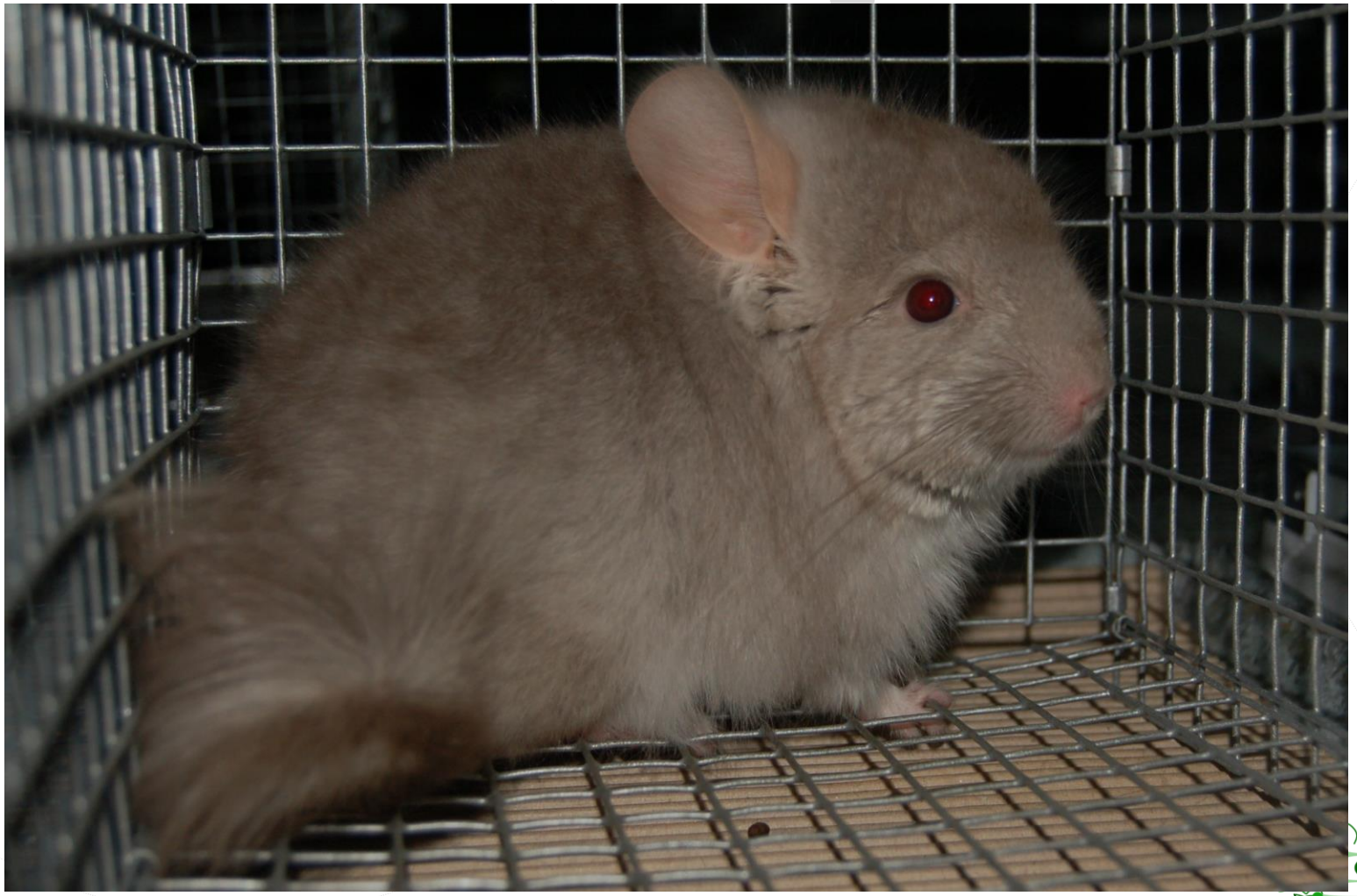
Beige Royal Persian Angora



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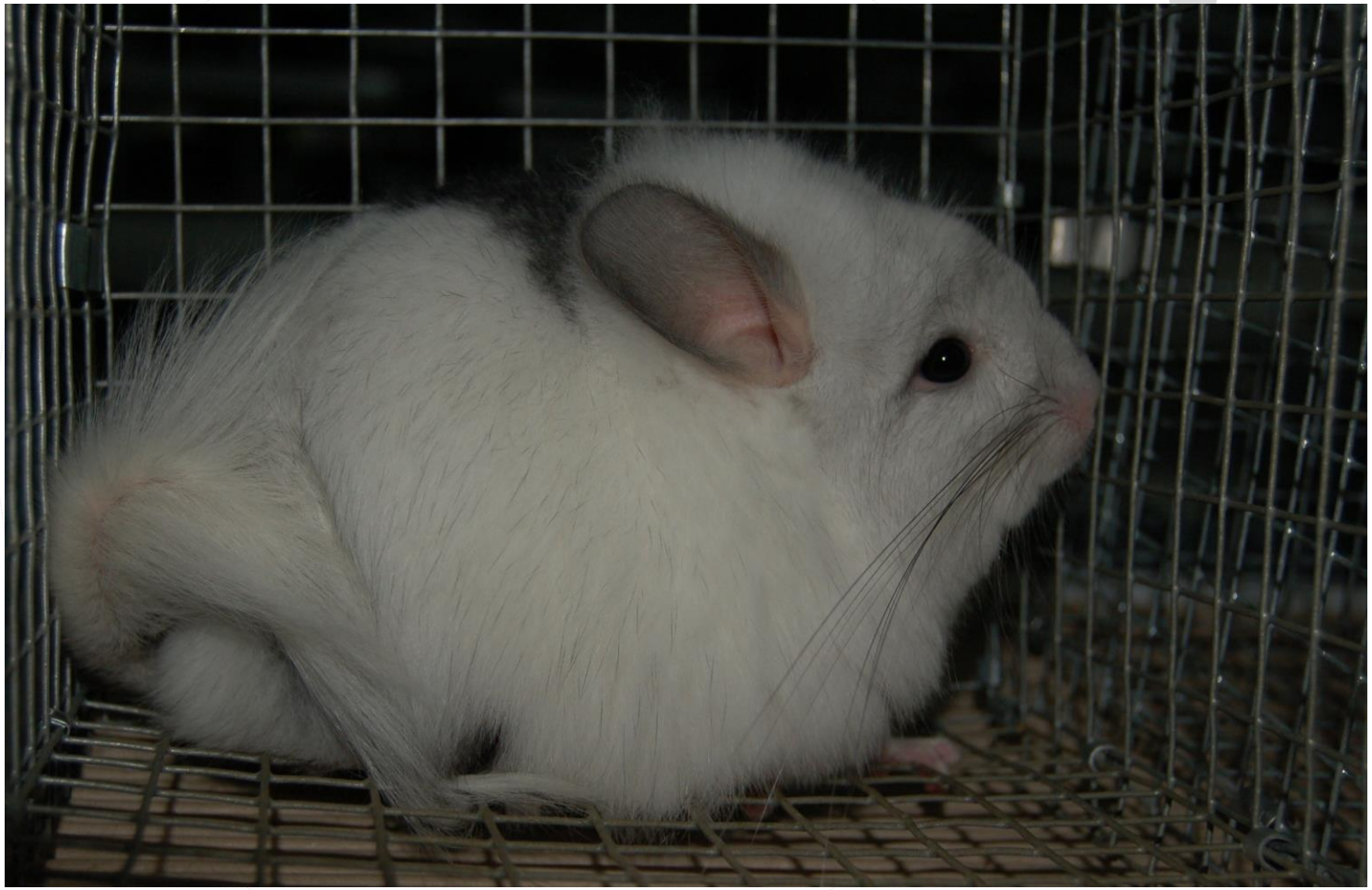
White Silver Mosaic Royal Persian Angora



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Treated leather of different colour varieties of chinchilla

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Chinchilla nutrition

- Chinchillas are herbivorous animals, with well-developed digestive tract. In natural conditions, they eat various grasses, herbs, small fruits, shoots, bark of trees and shrubs.

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Reproduction

- Oestrus - occurs many times a year
- increased drive from November to May (peak in January and February) - increased day length ,
- maturity for reproduction 6-8 months (capacity up to 8 years),
- length of the cycle during the period of activity from 30 to 50 days (up to 41 days)
- estrus 2 to 4 days,
- pregnancy from 105 to 115 days, most often 111 days.

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Reproduction

- Chinchillas have low reproduction rate. About 4 young per a litter (very difficult to feed) - realistically 2 young per a litter.
- Polygamous breeding 1: 4 – 8
- Births: The young are born completely hairy, have open eyes and are capable of independent life, weight from 30 to 70 g, depending on age, nutrition and hereditary characteristics.

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Weaning

- After a week, the young can eat solid food,
- the young can stay up to 45 days; when female is unfertilized - up to 60 days.
- If the litters are numerous, the weaning is realized, gradually starting with the strongest individuals (2-5 days)

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Housing conditions

- According to Rzewski it is necessary to provide:
- enough natural light
- fresh air supply
- good humidity (50-70%)
- possibility to regulate the temperature, not lower than 5°C, and in summer not higher than 25 °C
- the best temperature for chinchillas varies from 8 to 18°C.

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Animal care

- Not difficult, but it requires regularity, accuracy, care and constant observation of animals.
- Chinchillas are active at night and in the evening, so the works are realized in the afternoon or evening.

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Chinchilla diseases

- The occurrence of diseases often depends on: rearing, feeding, care and hygiene conditions.

- Diseases in chinchillas can be divided into: non-contagious caused by improper nutrition, not contagious caused by inadequate care, contagious diseases.

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Breeding work

- Important traits in chinchilla breeding include: fur quality traits, animal reproduction and animal health.
- Generally, the features can be classified into two groups: quality features and quantitative characteristics.

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The value of heritability of conformation traits in chinchillas

Trait	value
Animal size and conformation	0,20 – 0,40
Fur structure (quality)	0,20 – 0,45
Colour purity	0,30 – 0,45
Fur colour	0,30 – 0,50
Belly belt	0,20 – 0,30
Total number of points	0,25 – 0,35

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Breeding work - characteristics

- relatively short period of farm breeding,
- low fertility,
- relatively long period of pregnancy,
- high subjectivity when assessing the phenotype,
- possible difderences between the assessment of features on live animals and the subsequent assessment (price) of skins,
- animal selection based on phenotypic value,
- changing fashion for certain types of fur.

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RABBITS
Origin and biological characteristics of rabbits

Domestic rabbits are descended from the European wild rabbits (Orctolagus cuniculus L.).

Rabbits belong to the family Leporidae of order Lagomorpha.

European hare and the mountain hare are members of the same family.

The scientific name of the rabbit is derived from the Greek oruktês - excavator, lagôs = hare and Latin cuniculus - underground passage → hare digging an underground passage.

The European wild rabbit is native to the Mediterranean countries

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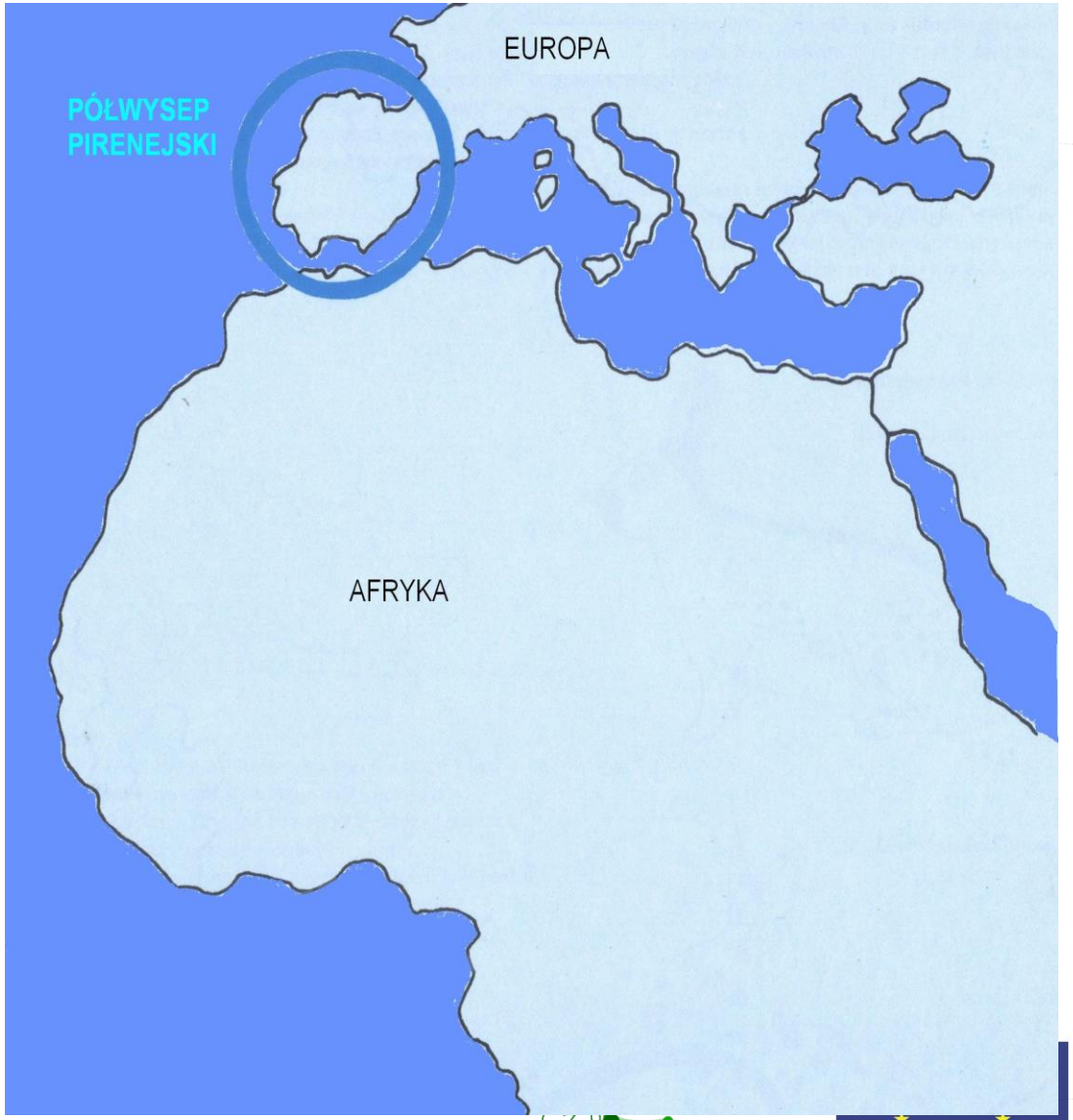
Presence of rabbits

► The European wild rabbits were particularly widespread in southern Europe, especially on the Iberian Peninsula.

► The Phoenician sailors named the Iberian peninsula I-Shaphan (Hispania) meaning "land of hyraxes", a misidentification of its numerous rabbits. The Romans, after conquering the Peninsula transferred the rabbit breeding technique into their entire empire.



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Characteristics of European wild rabbits

► Wild rabbits are medium-sized animals, about 40-50 cm long, weighting 2-2,5 kg.

► The hind legs with 4 toes are strongly developed and twice longer than front paws with 5 toes. Teeth adapted for biting hard food.

► The colour of wild rabbit fur varies. Back and sides → yellow-brown, with black, abdomen and the underside of their tail is white. Wild type – ogouti.

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Differences

Rabbits belong to the same family as hares, but there are differences between them.

Currently, there are also differences between the wild rabbit and the domestic rabbit:

- breeding season,
- animal weight,
- animal colour.

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Origin of angora rabbits

► The Angora rabbit comes from a wild rabbit whose hair has been lengthened. Such rabbits appeared in various places and died as less adapted to the natural environment.

► Angora rabbits probably come from the area around Turkey.

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Directions of use of rabbits

- Meat use: quality value of the meat, high fertility and prolificacy, high growth rate, low feed consumption, good musculature.
- Meat and fur utility,
- Fur utility,
- Wool utility,
- Use of rabbits as laboratory animals,
- The use of rabbits in amateur breeding.

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Meat use of rabbit

- **Compared to some types of farm meat,**
- **rabbit meat is characterized by a very high protein content,**
- **and lower fat content than pork, mutton and even veal.**

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Features of rabbit meat – importance in human nutrition

- **Rabbit meat is dietary, easily digestible, low-fat, rich in essential amino acids and unsaturated fatty acids,**
- **The quality of rabbit meat should at the same time meet the conditions required for processing and be consistent with the aesthetic, taste and dietary expectations of the consumer,**
- **The dietary qualities of rabbit meat can be improved by enriching it with unsaturated fatty acids, vitamins (vitamin E) and some microelements.**

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Classification of breeds in rabbits

Depending on hair coat and body weight:

normal-haired - large, meat type (over 5.5 kg),

normal-haired - medium, meat and fur type (3.5-5 kg),

normal-haired - small, fur type (up to 3 kg) including amateur and dwarfs,

short-haired - fur type (large and small),

woolly, long-haired - medium.

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General characteristics of the various breeds

Normal-haired - large, meat type

- **Belgian giants** - The largest rabbit, weight exceeds 7 kg, length up to 80 cm. Long, standing ears.
- The most common color is agouti (grey-brown). Less common colours: white, brown or black.

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- **French ram**.
- Body weight approx. 6.5 kg.
- The characteristic feature of this breed are drooping ears. Grey-brown colour. French colors, also white, albino, black, blue and piebald.

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- Giant piebald

Meat and fur breed, bred in England.

Body weight of adult animals is about 6 kg.

White with a dark stripe running along the back. On the sides there are symmetrically located (6-8) black or dark blue spots.

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White New Zealand and New Zeland Red

- White New Zealand:

- Meat and fur breed:

grown in the USA, brought to Poland in 1964,

harmonious appearance, the medium-long body is cylindrical, well developed,

body weight 4.5-5.5 kg,

early maturing breed.

- New Zeland Red

Also bred in the USA. The coat is dense, elastic, intensely red-gold with a good sheen. The weight of adult individuals is 4 to 5 kg.

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California

- The breed originated in the USA. The color of this breed is white except for the ears, lower legs, tail and nose which are black. Rabbits of this breed are characterized by very good musculature. The body weight of adult animals is about 4.3 kg.

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French Silvers (Champagne)

Bred in France in the Champagne region. Body weight 4.5-5 kg. Rabbits of this breed are attractive because of their fur. There is a large variation in color. The white tips of the cover hair give a characteristic silvery appearance. The coat is dense and springy.

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Viennese blue

They are characterized by a harmonious body structure, a long cylindrical torso, well muscled, the neck and limbs are medium long. Body weight 4.5-5.5 kg.

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Normal-haired - small, fur type

Not very common in farm breeding.

They have mainly fur value.

Black and tan

Dutch rabbit

Alaska rabbit

Japanese

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Short-haired rabbits

Characterized by a clearly shortened coat. Weight can reach up to 3.5 kg. They can have chinchilla, blue, white, black, tan, silver, Himalayan, spotted colour.

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Long-haired breeds

- Angora white, albino.
- The coat of Angola rabbits is snow-white, hair length up to 15 cm and longer. Recommended haircut 4-3 times a year, the length of downy hair reaches maturity of at least 6 cm. Annual yield minimum 500 g, ranges from 600-900 g.

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Examples of rabbit breeds - Belgian giants and French rams

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German piebald, triple Czech piebald and French silvery

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New Zealanders white, New Zealand red, Burgundian, Termonde white

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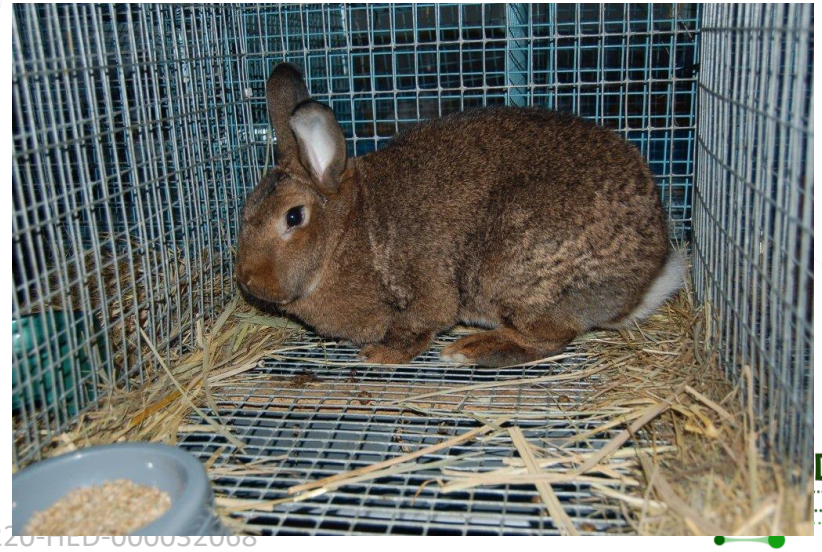
California White, Dutch, Viennese Blue, Viennese Grey



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Viennese black, Japanese, greyhound and white

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White angora and gray angora

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Castorex - Rex

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Dwarf - minjator races

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Miniature breeds - black and white, black and tan French dwarf

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Rabbit breeding

- **Microclimatic conditions:**
- **Indoor temperature 14°C - 18 ° C, for females 16°C - 20°C.**
- **Very dangerous overheating above 25°C.**
- **light - an important factor affecting the reproduction of rabbits. It can be natural, artificial and combined.**
- **For a breeding stock, 14-16 hours of light per day and 50 lux.**
- **Humidity - 50-70%.**

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Varied conditions of keeping and using rabbits - commercial and hobby farms

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Nutrition of rabbits.

Anatomy and physiology of the digestive system:

Herbivore, digestive tract length x 13 body length

- **Single and small stomach 180-200 cm3.**

Feeding systems:

traditional - with the use of roughage and concentrated fodder (small-scale farms),

modern - with the use of full-ingredient granular mixtures.

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Reproduction

- Breeding maturity (3-4 months),
- small and medium breeds 4-6 months, large breeds 6-8 months,
- sexual maturity and physical maturity,
- ability to reproduction - females 4-5 years, males 6-8 years, can live up to 16 years,
- used in an intensive system of 2-3 years,
- estrus lasts 12-36 hours,
- provoked ovulation occurs at 10 hours after mating.

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Reproduction

- Prenancy length 31-32 days,
- during pregnancy, it is not recommended to unnecessarily disturb and move the female,
- from 1 to 20 bunnies per litter, on average 6-10 young,
- born rabbits: naked, deaf, blind, body weight 50-80 g, the coat begins to grow after 3 days,
- milk: 29-32 dry matter, 11-14% protein, 11-14% fat, 1.5-2.5% lactose, 2.3-2.5 minerals,
- Young up to 16-18 days of age feed exclusively on milk.

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Reproduction

- Rabbits per 1 g of growth consume 2 g of mother's milk,
- They can see at the age of about 12 days, after 3 weeks of rearing they leave the nest.

The purpose of rearing: obtaining as many offspring as possible, obtaining well-developed bunnies before weaning without over-exploiting females

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Young rearing

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Young rearing

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Breeding work

- Evaluation of working and breeding value:

Based on the phenotype of rabbits: the external characteristics of animals,

Traits related to animal reproduction: fertility and prolificacy,

Rabbit health,

Weight gain rate and feed utilization

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Evaluation

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Health

Most common causes of diseases:

insufficient hygiene and improper care of animals,

defective nutrition,

unsuitable rooms

ailure to comply with the rules of periodic decontamination of cages,

fighting infectious diseases from the outside.

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Fighting diseases

- animal observation,
- disease prevention,
- fighting the causes,
- isolation of sick animals.

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