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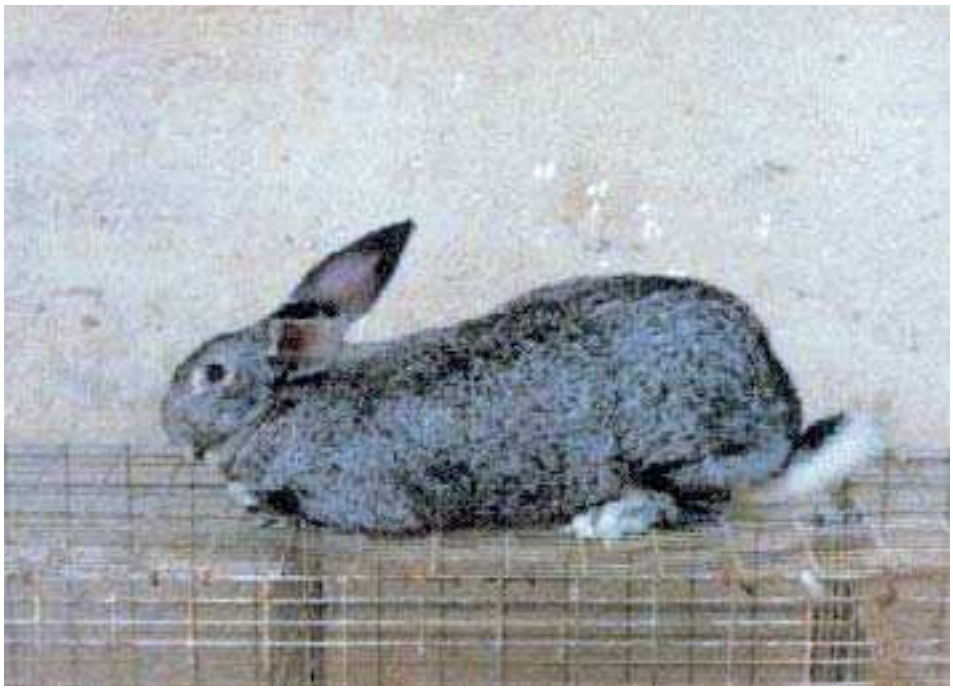

The Carmagnola Grey

The Carmagnola Grey Rabbit (Italy)

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SUMMARY – A description of the Italian Carmagnola Grey rabbit is carried out. Items that are dealt with are: (i) a general description; (ii) climate and main features of its farming; (iii) performance; and (iv) the use in crosses with other breeds.

Key words: Carmagnola, origin, performance.

RESUME – *"Le lapin gris Carmagnola (Italie)". Cet article présente une description du lapin gris italien Carmagnola. Les éléments suivants ont fait l'objet d'études : (i) une description générale ; (ii) le climat et les principales caractéristiques d'élevage ; (iii) les performances ; et (iv) l'utilisation en croisement avec d'autres races.*

Mots-clés : *Carmagnola, origine, performances.*

1. Breed name

(i) *Breed name synonyms:* Carmagnola Grey.
(ii) *Strains within breed:* none.

2. General description

2.1. Population data

2.1.1. Population size and census data

(i) Population size: <500.
(ii) Total number of females being used in purebreeding: ~70.
(iii) Total number of females being used in crossbreeding: unknown.
(iv) Percent of females being used pure: unknown.
(v) Total number of males used for breeding: ~10.
(vi) Number of males used in AI-service: none.

Source of data: Dept. Animal Science, Turin University, Italy.

2.1.2. Herd sizes (Table 1)

Table 1. Herd sizes in governmental, commercial and small scale farms

	Governmental	Commercial	Small-scale
Mean			
Adult animals	80	None	Unknown
Young animals	150	None	Unknown
Range			
Adult animals	60-100	None	Unknown
Young animals	100-200	None	Unknown

2.1.3. Origin of the breed

The origin of the Carmagnola Grey rabbit was a local population of grey rabbits, spread among the farms around the city of Carmagnola, in the Piemonte area (north-west of Italy), during the 50s and that almost completely disappeared at the beginning of the 80s as a pure breed. In fact, the available subjects often came from crosses with other breeds (Burgundy Fawn, Blue Vienna, New Zealand White) and originated by chance or by unplanned mating. In 1982, a stock of rabbits was bred in the Breeding Unit of the Department of Animal Science (former Institute of Animal Science), University of Turin, Italy, in an attempt to recover this breed, and since then a nucleus of these rabbits is still studied.

2.1.4. Immigration

Unknown.

2.1.5. Situation with regard to danger of extinction

Critical (breeding females <100; breeding males <20).

2.1.6. Conservation programme

Conservation for live animals.

2.2. Use of the breed in a descending order of product importance

Meat.

2.3. Colour

Grey over-colour, lighter on the ventral regions, on the medial and plantar surfaces of hind legs and on the lower part of the tail. A lighter and triangular spot is present on the neck. The ears can be black edged, and the upper part of the tail is dark. Pigmented nails and dark eyes. Grey or light grey under-colour, never white.

2.4. General type

2.4.1. Body parts (Table 2)

(i) *Type and conformation:* medium size, compact muscles, long body with fleshy shoulders and loins, ample pelvis, strong back with right shape.
(ii) *Weight:* males from 3.5 to 5.5 kg.
(iii) *Coat:* thick and soft hair of medium length.

Table 2. Body measurement (cm) at marketing age

Trait	Mean	Range
Body length	43.5	40-46
Chest circumference	34.5	32-38
Loin width	13.7	12-16
Thigh circumference	20.0	17-23

2.4.2. Head: slightly long head, convex profile

2.4.3. Eyes: dark

2.4.4. Ears

Erect and strong. Maximum length 14 cm.

2.4.5. Feet and legs: medium length legs, with thick and strong plantar fur pad

2.4.6. Tail: straight

2.5. Basic temperament (for males and females): docile

2.6. Special characteristics of the breed

Good adaptability to different rearing systems.

2.7. Nest quality: usually pooled, seldom scattered

3. Pattern

3.1. Climate

3.1.1. Elevation and topography: plain, hill and well drained valley

3.1.2. Favourable climate: temperatures between 10-30°C and humidity between 50-90%

3.2. Main features of farming

3.2.1. Socio-management system: semi-intensive

3.2.2. Mating method: natural

3.2.3. Nutrition

(i) *Concentrates:* pelleted.
(ii) *Water:* freely available.
(iii) *Seasonality of nutrition:* no seasonality.

3.2.4. Housing

Cages: wired cages in indoor rabbitries.

3.3. Common diseases and parasites

Sporadic mastitis, intestinal and reproductive diseases, feet and ear mites.

4. Performance

4.1. Reproduction (Tables 3, 4 and 5)

Table 3. Information of sexual maturity

Trait	Mean	Range
Age of buck at first service (months)	5	4.5-6
Age of doe at first mating (months)	4	3.5-5
Age of doe at first kindling (months)	5	4.5-6
Weight of buck at first service (g)	–	3500-4500
Weight of doe at first mating (g)	–	3500-4500

Table 4. Information of semen

Trait	Mean	Range
Ejaculate volume (ml)	–	0.8-3.0
pH	–	7.3-7.5

Table 5. Fertility and fecundity traits

Trait	Mean	Range
Conception rate (%)	80.4	70-90
Kindling interval (days)	55	40-80
Litter size at birth	8.5	5-12
Litter size at weaning (5 weeks)	5.4	3-11
Litter weight at weaning (5 weeks, g)	5160	3000-10,000

4.2. **Prenatal mortality per litter** (Table 6)

Table 6. Prenatal mortality per litter

Trait	Mean	Range
Stillbirths (%)	7.8	4-11

4.3. **Lifetime production per doe** (Table 7)

Table 7. Lifetime production per doe

Trait	Mean	Range
Number of litters per year	–	5-8
Doe longevity (years)	–	0.8-3

4.4. **Post-weaning body weight, gain and food utilisation** (Tables 8 and 9)

Table 8. Post-weaning growth traits of body weights and gains (g)

Trait	Mean	Range
Weight at weaning (4 weeks)	600	500-900
Weight at 8 weeks	1490	1200-1800
Weight at 12 weeks	2400	2100-2750
Daily gain 4-8 weeks	32.8	26-44
Daily gain 8-12 weeks	32.9	27-40

Table 9. Post weaning food utilisation per young

Trait	Mean	Range
Daily feed intake (g)	117.4	100-130
Feed conversion (g intake per g gain)	4.5	3.5-5.5

4.5. Carcass traits and meat composition (Table 10)

Table 10. Carcass traits and meat composition

Trait	Mean	Range
Slaughter age (weeks)	13	12-15
Slaughter weight (g)	2710	2600-2800
Hot carcass weight (g)	1710	1600-1800
Carcass length (cm)	39.1	35-44
Dressing percentage	63.0	61.5-64.5
Fur weight (g)	383	350-415
Distal part of fore and hind legs (g)	93	85-100
Empty gastrointestinal tract (g)	188.7	175-210
Liver (g)	61	51-72
Kidney (g)	14.7	12-16
Thymus, trachea, oesophagus, lung, heart (g)	27	24-30
Head (g)	135.2	126-144
Perirenal fat (g)	18.6	10-26
Scapular fat (g)	8.3	4-13

5. Genetic improvement

5.1. Crossing of breed with other breeds

Carmagnola Grey bucks were used on New Zealand White and on hybrid does (Crimella *et al.*, 1992; Luzi *et al.*, 1992; Masoero *et al.*, 1992b; Lazzaroni *et al.*, 1993, 1995).

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