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Male Gigante de España

Female Gigante de España

Young rabbits

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SUMMARY – The Gigante de España breed was created at the beginning of the 20th century in the region of Valencia (Spain). It was bred in many Spanish rabbit farms, but its numbers decreased drastically due to the appearance of commercial hybrids. As a result, a recuperation and conservation programme was undertaken. This document provides a general description of its census and physical and productive characteristics.

Key words: Gigante de España (Spanish Giant rabbit), description, performance, genetics.

RESUME – *"La race Gigante de España (Espagne)". La race Gigante de España fut créée au début du 20e siècle dans la région de Valence (Espagne). Elle était élevée dans de nombreuses fermes cunicoles espagnoles, mais ses effectifs avaient baissé considérablement dû à l'apparition d'hybrides commerciaux. Comme résultat, un programme de récupération et de conservation a été mis sur pied. Ce document présente une description générale des effectifs et des caractéristiques physiques et productives.*

Mots-clés : *Gigante de España (lapin géant d'Espagne), description, performances, génétique.*

1. Breed name

(i) *Breed name synonyms:* none.
(ii) *Strains within breed:* three varieties before the 1970's: Red, Brown and White. Only the Brown strain remains.

2. General description

2.1. Population data

2.1.1. Population size and census data: <1000 reproductive males + females

(i) Total number of females used in purebreeding: 250-300.
(ii) Total number of females used in crossbreeding: unknown, but definitely less than purebreeds.
(iii) Total number of males used for breeding: about 450.
(iv) Number of males used in AI-service: about 250, located in commercial farms or insemination centres. Their semen is used to inseminate other breeds (mostly hybrids with New Zealand White and Californian).

Source of data: data from breed census followed up since 1984.

2.1.2. Herd sizes (Table 1)

2.1.3. Origin of breed

The exact method used to obtain this breed is unknown, but it is generally accepted that the intervention of the Flemish Giant breed (males) and the *Lebrel Español* (females) are involved. The crossed females were bred with large males of the Belier breed, selecting for rabbits with erect ears. In this way, two large-size

breeds were conjugated with a smaller one, but the latter was rustic and had good maternal characteristics (Baggeto, 1918; Lacomba, 1919).

Table 1. Herd sizes of Gigante de España rabbits in government, commercial and small-scale farms

	Government farms	Commercial farms	Small-scale farms
Mean			
Adult animals	200	60	5
Young animals	500	–	–
Range			
Adult animals	–	20-100	3-8

The breed was created at the beginning of the 20th century in the region of Valencia. It later expanded successfully to the rest of Spain, acting as the base for many rabbit breeding farms, both industrial and especially on family-run (small-scale) farms. It was also exported to other countries.

2.1.4. Situation with regard to danger of extinction

Since the 1960's and 70's, and as a consequence of the introduction of the New-Zealand and Californian breeds and later the hybrids, rabbit breeding evolved rapidly in Spain from being a craft to a real rabbit breeding industry. This evolution was accompanied by the progressive decrease in the census of the Gigante de España breed to the point of extinction. After the establishment of a recuperation programme in 1984, the breed can now be considered endangered, since the total number of purebreeding females is about 250-300.

2.1.5. Conservation programmes

Conservation of live animals and vitrified embryos. We are studying the possibility of conserving frozen semen.

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

This is a medium-high sized breed (4-5.5 kg) and is used only for meat production.

2.3. Colour

Brown, as shown in the photographs. The tone can be darker or lighter if there are dominating black or red hairs (see photographs).

2.4. General-type

2.4.1. Body parts

Good back and loin widths, with predominating hindquarters in adults. Large thighs. Rounded profile and a markedly convex back in the posterior half. Harmonious development at marketing age (see photographs).

The length of the trunk (Table 2) was measured with a cloth measuring tape, from the first cervical vertebra to the first coccyx, along the body profile. The loin width was determined with a calliper compass.

Table 2. Body measurements at marketing age and before the beginning of the reproductive life of the females (cm)

Trait	At 2 months	At 18 weeks
Trunk length	38	48
Head length	11.8	13.3
Tail length	8.9	9.8
Chest circumference	26.5	33
Loin width	6.7	7.8
Ear length	12	13

2.4.2. Head and neck

Large size and a convex profile. The female has a dewlap. The measurement in Table 2 was taken using a cloth measuring tape, from the nose to the point where head and neck meet along the profile.

2.4.3. Eyes

Large and black.

2.4.4. Ears

Large and erect. Measurements in Table 2 were taken with a metallic measuring tape, following the indications of the Fédération Française de Cunicuniculture (1993).

2.4.5. Feet and legs

Short and strong.

2.4.6. Tail

Straight. Measurements in Table 2 were determined from the first to the last coccyx vertebra with a metallic measuring tape.

2.5. Basic temperament

The males are docile, but very aroused in presence of females. The females are a little nervous when they have pups.

2.6. Special characteristics of the breed

This breed seems to have some resistance to digestive diseases since enteric problems have only been reported once in the Government farmed rabbits, since 1984 and never for their adult rabbits. Reproductive problems are also rare.

On the other hand, males who can mate naturally show a better reproductive response in indoor farms than other males (white males) in higher temperature seasons.

2.7. Nest quality

Pooled. Some nests can be scattered in summer (under high temperatures), most probably because the pups feel too hot.

3. Pattern

3.1. Climate

They adapt very well to different climates and can live on farms with cold and wet weather (Asturias) or warm and dry areas (Alicante, Murcia). The main population (the Government farm) can withstand lows of 6-7°C in winter to >40°C in summer. These changes are similar for rabbits in small farms without air conditioning.

Their most favourable conditions are between 12-30°C and a relative humidity of 50-80%.

3.2. Main features of farming

3.2.1. Socio-management system

Semi-intensive system, with a 42-day reproductive cycle. Mating is performed 11 days post-partum and weaning takes place at 30-35 days old.

3.2.2. Mating method

Natural mating for every Gigante de España female. The semen of Gigante de España males is mostly used for hybrids or other breeds as a terminal cross.

3.2.3. Nutrition

(i) *Concentrate:* pelleted *ad libitum*.
(ii) *Water:* freely available by automatic drinking.
(iii) *Seasonality of nutrition:* sometimes in summer the reproductive males and females are provided with a highly energetic and proteic pellet.

3.2.4. Housing

(i) *Cages:* wired cages in flat-deck and indoor rabbitries are most common.
(ii) *Photoperiod:* light:dark constant (16:8 h) or sometimes the photoperiod is used as a reproductive bio-stimulation system.

3.3. Common diseases and parasites

Most adult animals are vaccinated against myxomatosis, and also VHD. Some are vaccinated against pasteurellosis (normally with autovaccinations).

Some rabbits may receive treatment against coccidiosis a week before the vaccination.

Before mating, every reproductive animal is examined. Some animals may have pasteurellosis, mastitis or pododermatitis.

4. Performance

4.1. Reproduction (Tables 3, 4 and 5)

Table 3. Sexual maturity in Gigante de España rabbits

Trait	Mean	Range
Age of buck at 1st service (months)	5.5	5-6
Age of doe at 1st mating (months)	5.5	5-6
Weight of buck at first service (kg)	4.5	4-5
Weight of doe at first mating (kg)	4.5	4-5.5

Table 4. Semen characterising of Gigante de España adult bucks (Vicente and Mocé, pers. comm.)

Trait	Mean
Ejaculate volume (ml)	0.9
Sperm concentration per ml (10^6)	125
Sperm motility (%)	75
Sperm abnormalities (%)	17

Table 5. Fertility and fecundity traits in Gigante de España breed

Trait	Mean	Range
Fertility rate (%)	74	–
Kindling interval (d)	50	–
Ovulation rate	8.6	8.4-9.1†
Litter size††		
At birth: total	8.8	–
Alive	8.0	–
At weaning	6.5	–
Litter weight (g)		
At birth	480	–
At weaning (35 days)	6800	6500-7100†††

†According to the season.
††Average of the first 10 births.
†††Litters with 7 and 7.2 pups weaned in summer or winter respectively.

4.2. Pre-natal mortality per litter (Table 6)

Table 6. Pre-natal mortality in Gigante de España rabbits

Trait	Mean
Abortion (%)	0.2
Stillbirths (%)	8.0

4.3. Milk yield traits (Table 7)

Table 7. Milk yield traits of Gigante de España does

Trait	Mean	Range
Number of teats	9	8-10
Peak of lactation (days)	20†	–
Total milk yield (g)	4202†	–

†The milk production of the Gigante de España breed was studied by Blas and Gálvez (1973) and Torres *et al.* (1978). They analysed the weight difference in pups before and after feeding, after breast feeding once a day and always at the same time of day. Lactation lasts 35 days. The above authors verified the influence of the number of breast feeding pups on both milk production of the mothers and the shape of the lactation curve.

4.4. Lifetime production per doe (Table 8)

One of the main objectives of the conservation plan was to verify the maximum reproductive lifetime for females, as well as their ability to provide an elevated number of births in economically viable environmental conditions. The results were satisfactory, although productivity deteriorated sharply after the first year of reproductive life.

Male longevity is high. Many individuals reach 3-4 years of age and continue to behave normally during mounting and obtain good reproductive results (although older rabbits are normally subject to few mounts).

Table 8. Lifetime production of Gigante de España does

Trait	Mean	Range
Number of litters per year	7.3	–
Doe longevity (months)	18	7-41

4.5. Post-weaning body weight, gain and food utilisation

Normally weaning is performed at 30 days of age. Some tests have been performed on weaning at 35 days, since this is a normal weaning age for commercial rabbit farms, as summarised in Table 9.

Table 9. Post-weaning growth traits of body weights (g), gains (g/d) and food utilisation

Trait	Mean
Body weight	
Weaning†	950
Post-weaning	
9 week weight	2000
Average daily gain	
5-9 weeks	36
Feed conversion: 30-60 days	3.3

†The weaning is performed at 5 weeks old.
The litter has 7.1 pups on average.

4.6. Carcass traits and meat composition (Table 10)

Table 10. Carcass traits and meat composition of Gigante de España rabbits

Trait	Mean
Slaughter weight (g)	2012
Hot carcass weight (g)	1201
Dressing percentage	57.5
Muscle (%)	78.2
Bone (%)	16.7
Fat (%)	5.1
Muscle:bone ratio	4.69

This breed has been the subject of many studies on carcass and meat quality in the pure breed, in order to verify whether the degree of maturity is adequate for normal slaughter weights in Spain (1.9-2.2 kg). We also considered the carcass quality of crosses to better understand their characteristics and possible results that may be obtained.

In market terms, many Gigante de España males are crossed with white females because the pups have dark coloured hair and eyes. These carcasses are very attractive for the Spanish market and are more expensive in some regions.

4.7. Hair and fur traits

The Gigante de España is a normal-haired breed with smooth skin. The length of the longest hairs on the rump (measured as described by the Fédération Française de Cuniculiculture) is 37 mm in 18-month old females and 30 mm in young 2-month old pups weighing 2 kg (at slaughter).

5. Genetic improvement

5.1. Selection for economic traits

The Gigante de España breed is not under an intense selection programme, since the main objective is its recuperation and conservation to avoid losing its genetic material in the few farms that produced these rabbits at the beginning of the 1980's.

Selection is performed at independent culling levels: litter size at weaning and growing rate during fattening afterwards, maintaining its rusticity and adaptation capacity.

5.2. Crossing of Gigante de España with other breeds

Although many male Gigante de España are used in crosses in commercial farms, no general follow-up has been performed of the results of these crosses. On the experimental level, crossing meat purpose terminal males with female Gigante de España, produces more viable pups, especially during fattening where we have obtained mortality levels as low as 0.2% in some cases, as well as better growth during fattening and shorter and wider carcasses. But this did not substantially modify the reproductive results, transformation index during fattening, dressing percentage or meat quality.

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