

## Transylvanian Giant Rabbit (*Oryctolagus cuniculus*): Rustic means also aggressive

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**Abstract.** In the last years, Transylvanian Giant Rabbit (TGR) became very popular among the rabbit breeders and scientists in Romania, but also outside the country. This is mainly due to a high slaughter yield and rather good productivity for a pure breed. It is assumed that TGR could be an excellent buck for rabbit hybrids and rabbit meat production in the future due to its size, dressing efficiency, ears and feet length (which are not too long), resistance to unfavorable environmental factors and so on. Beside these excellent characteristics of this rabbit, there are also some inconveniences with this breed: it is very aggressive to conspecifics but as well against other species (e.g. rats) or moving objects (such as the farmer's hand). In the present paper, their aggressiveness was compared with the behavioral response of other two common rabbit breeds (Californian and Grey Giant). Results demonstrated that Transylvanian Giant was indeed more aggressive than Grey Giant and Californian Rabbit both in terms of percentage and intensity. If TGR high aggressiveness was initially just an observation or supposition, now it is a fact. Seemingly, the genetic rusticity goes hand in hand with the resistance to environmental factors and with aggressive behavior. However, this aggressiveness will not affect in negative sense a farm economically because the differences observed in percentages are not statistically significant.

**Key Words:** Local breeds, rustic breeds, domestic rabbit, aggressiveness.

**Introduction.** Transylvanian Giant Rabbit (TGR) is a large sized breed of 4.5 – 9.0 kg and was produced mainly for meat production (Petrescu-Mag et al 2009). It is the first Romanian rabbit breed in full process of homologation. It is nationally standardized (Petrescu-Mag et al 2011, 2012) and the standard was also accepted by the commission of standardization and judgment of Entente Européenne (Europaschau, Neue Messe, Leipzig, Germany, 7-9<sup>th</sup> of December, 2012). The breed has its origins in many distinct populations of rabbits: the common Romanian rabbit (heterogenic and non-standardized animals), German Grey Giant, Giant Papillon and Californian (Petrescu-Mag et al 2009). Just to mention that a second local breed, having different origin, competes with the performances of TGR: The Cluj Rabbit (Botha et al 2011, 2013). Both these breeds are important subjects for Romanian gene pool and local breed conservation. From environmental point of view this side of conservation of the natural resources, "local breeds", are not less important than wildlife conservation. However, domestic or wild, data concerning the biodiversity from Romania are still missing or poor at European level (Covaciu-Marcov et al 2009).

In the last years, TGR became very popular among the hobbyists, farmers and scientists in Romania, but also outside the country. This is mainly due to a high slaughter yield and rather good productivity for a pure breed (Petrescu-Mag et al 2015). It is

assumed that TGR could be an excellent buck for rabbit hybrids and rabbit meat production in the future due to its size, dressing efficiency, ears and feet length (which are not too long), resistance to unfavorable environmental factors and so on. Beside these excellent traits, there are also some inconveniences with this breed: it seems to be aggressive to conspecifics but as well against other species (e.g. rats) or moving objects (such as the farmer's hand). If the aggressive behavior against rats or other predators is benefic, the aggressive behavior against farmer's hand is a negative aspect because it is a cause of accidents. For this reason, our team started the present investigation to see if this supposition is true. If the answer is "yes", another goal of our research is to see whether the incidence is statistically different compared to other two of the parental breeds: Grey Giant Rabbit (GGR) and Californian Rabbit (CR).

**Material and Method.** Because in Romania is difficult to find large number of animals together in one farm, in the same time and same housing conditions, the study was made over a period of three years (including all the seasons) on a population of rabbits located in Cluj-Napoca, Cluj County, North-West Romania (bred at Bioflux SRL Biobase). TGRs were pure breed as they were part of the brood stock presented in Germany, or they originated from those parents, while GGRs and CRs were animals officially registered in the Genealogical File of the Poultry and Small Animal Association in Cluj-Napoca (which is part of UGCCPAMR and Entente Européenne).

Because behavioral sequences in rabbits vary with season, age or sex (Briganti et al 2003; Hoy & Schuh 2005; Mykytowycz & Hesterman 1975; Southern 1948), the observations were randomly spread from spring to winter, analyzing both sexes, adults and young animals (see Tables 1-3). The moving object was the farmer's hand, protected by a handshoe. Aggressive behavior was considered only when rabbit tended to bite or scratch the handshoe. Because they are territorial, rabbits were tested only in their cages; nevertheless some of them showed aggressive behavior against conspecifics outside of their cages, in completely new territories (see Figure 1). Data were used to fill in Tables 1, 2 and 3. We used Medcalc 14.8.0 software and chi-square test to test the significance of the differences observed between the breeds.

**Results and Discussion.** Results showed that TGR is indeed more aggressive than GGR and CR. Same high aggressiveness was reported by Botha et al (2007) in Californian does, a breed with the same color genetic background just as TGR, fact which arise presumption about a possible linkage with the himalaya gene pattern.

From the total number of individuals TGR had a percentage of aggressive animals of 24.37 % compared to 15.09 % (GGR) and 16.67 % (CR). However, the chi-square test indicated that the difference was not significant ( $p=0.167$  compared to GGR, and  $p=0.215$  compared to CR).

Table 1

Number of TGR tested for aggressiveness on sexes and age

<i>Transylvanian Giant Rabbit (Oryctolagus cuniculus)</i>								
Total animals observed	Adult rabbits				Young rabbits (aged between 4 and 5 months)			
	Bucks		Does		Males		Females	
	A	N	A	N	A	N	A	N
119	9	28	13	32	4	18	3	12

A- Agressive against moving objects (e.g. the farmer's hand) in its cage.

N- Non-aggressive against moving objects (e.g. the farmer's hand) in its cage.

Even if the intensity of aggressiveness could not be estimated statistically, it is notable that TGR showed a remarkable and unusual high aggressiveness in terms of intensity. Some aggressive adult animals start a restless movement within their cage even in the case when the farmer approaches the cage.

Table 2

Number of GGR tested for aggressiveness on sexes and age

<i>Grey Giant Rabbit (Oryctolagus cuniculus)</i>								
Total animals observed	Adult rabbits				Young rabbits (aged between 4 and 5 months)			
	Bucks		Does		Males		Females	
	A	N	A	N	A	N	A	N
106	2	25	4	21	5	20	5	23

A- Aggressive against moving objects (e.g. the farmer's hand) in its cage.

N- Non-aggressive against moving objects (e.g. the farmer's hand) in its cage.

Table 3

Number of CR tested for aggressiveness on sexes and age

<i>Californian Rabbit (Oryctolagus cuniculus)</i>								
Total animals observed	Adult rabbits				Young rabbits (aged between 3 and 4 months)*			
	Bucks		Does		Males		Females	
	A	N	A	N	A	N	A	N
102	4	24	4	20	5	22	4	19

A- Aggressive against moving objects (e.g. the farmer's hand) in its cage.

N- Non-aggressive against moving objects (e.g. the farmer's hand) in its cage.

\*Californian rabbits are medium sized and become adults earlier than the other two breeds studied.



Figure 1. Intraspecific aggressive behaviour of TGR: an indication of their rusticity. Two females in the picture (photo provided by www.MirceaRosca.com).

**Conclusions.** TGR is more aggressive than GGR and CR both in terms of percentage and intensity. If TGR high aggressiveness was initially just an observation or supposition, now it is a fact. Seemingly, the genetic rusticity goes hand in hand with the resistance to environmental factors and with aggressive behavior. However, this aggressiveness will not affect in negative sense a farm economically because the differences observed in percentages are not statistically significant.

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