

## **STUDY ON REPEATABILITY OF SIRE BEHAVIORAL TYPES IN F1 BUCKS OF NEW ZEALAND WHITE AND TERMOND WHITE RABBITS**

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### **ABSTRACT**

The aim of the study was to estimate the repeatability of the behavior type of the father in male progeny in F1 generation of two breeds of rabbits. Termond White (TW) and New Zealand White (NW) bucks were divided with empathic test to Timid, Tame and Aggressive behavior patterns. In the next phase, the sons of previously selected males were estimated with the same testing procedures within both breeds. No significant differences in behavior types in F1 were observed, regardless of the fathers pattern. Moreover, the differences between breeds were also not significant.

**Key words:** Termond White rabbit; New Zealand White rabbit; behavioral test.

### **INTRODUCTION**

Rabbit behavioral patterns were described in numerous papers (Southern, 1948; Stodart and Myers, 1964; Mykytowycz and Dudzinski, 1972; Lehman, 1991; Gacek, 1982, 2000; Verga, 2000; Zajac, 2005). Rabbit reproductive behavioral patterns were studied mainly in does (Melo *et al.*, 2008; Hoffman *et al.*, 2009). In some papers (Piles *et al.*, 2006), it was even not recommended to include buck component in selection models for reproduction traits. However, the effectiveness of bucks performance is an important part of modern production technology involving insemination (Fallas-López *et al.*, 2011). Hereby, we test the buck behavioral type repeatability in F1 male progeny.

### **MATERIALS AND METHODS**

#### **Animals and experimental design**

In assessing the type of behavior in bucks we used the median value (observation number  $\frac{n+1}{2}$ ) to describe the scale of obtained reactions.

The initial tests for the behavioral type was performed on bucks of New Zealand White (NZ, n=42) and Termond White (TW, n=42) breeds, of approx. 6 months of age. Animals were kept in separate cages with constant supply of feed (17% of crude protein, 18% of crude fiber) and water.

The empathic test, proposed by Gacek (1999), was performed to determine the reactivity (from timid to aggressive behavior) for a red ribbon tied on a knot of a flexible rod, inserted through the grid mesh into the cage at the rabbit's eye level. The following specific reactions were recorded and buck presenting them were given following median values:

- 1 - Timid, fearful - animals trying to escape from the cage in panic,
- 2 - Distrustful - startle reaction, immobilization in position reversed towards object. Eyes wide open, closing with approaching of the object,
- 3 - Tamed, neutral - no interest towards the ribbon, even when touched the body,
- 4 - Curious - interested in object, approaching sniffing, rubbing and biting the ribbon,
- 5 - Aggressive - immediately attacking the object, trying to bite firmly. Stretching the body and tail. Often huffing and snorting.

From each breed, 10 bucks with most explicit types of behavioral reactions were selected, which were: A - Aggressive (median = 5), Ta - Tamed (median = 3), Ti - Timid (median = 1). 30 bucks from each breed were chosen (60 males together). From each sire group random selection of 42 sons was done: 252 F1 bucks were then chosen to estimate their behavioral type by using empathic test.

### Statistical analysis

The results were presented in tables as means. The significance of differences was calculated by Duncan's multiple range test (Statgraphics Plus).

## RESULTS AND DISCUSSION

Table 1 and table 2 presents the values of medians estimated in the empathic test of sires and F1 bucks. Although the differences were not statistically significant, we would like to emphasize general trends.

**Table 1:** The results of empathic test performed on TW and NZ sires (medians)

Behavioral type	TW		NZ	
	Number of sires	Median value	Number of sires	Median value
Ti	10	1.40	10	1.60
Ta	10	3.00	10	3.00
A	10	4.25	10	4.00

Ti – timid ; Ta – tamed ; A – aggressive ; TW – Termond White ; NZ – New Zealand White

**Table 2:** The results of empathic test performed on TW and NZ F1 bucks (medians)

Behavioral sires (fathers) type	TW F1		NZ F1	
	Number of sons	Median value	Number of sons	Median value
Ti	42	2.45	42	2.98
Ta	42	3.12	42	3.06
A	42	2.86	42	2.76

Ti – timid ; Ta – tamed ; A – aggressive ; TW – Termond White ; NZ – New Zealand White

In Ti and A sires, F1 generation showed a tendency towards moderate type of behavior (Ta), than that in fathers, while in Ta animals it was rather constant. Relatively stronger was the trend to decrease in timid reactions than those of aggressive character.

There were no distinct relations in comparison of behavior types of F1 bucks with their fathers. The average value of median was 3.0, regardless of parent behavioral pattern. Moreover, no significant differences were noted between breeds within similar type of temperament.

## CONCLUSIONS

1. No significant differences in particular behavior type were detected between breeds,
2. Regardless of the breed, there were differences in temperament in timid, tamed and aggressive rabbits,
3. No differences in behavioral types were detected in F1 bucks, regardless of father's behavior patterns.

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