

COMPARISON ON PERFORMANCE SLAUGHTER PARAMETERS AND QUALITY OF MEAT OF FOUR BREEDS OF RABBITS

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Abstract - Performance, slaughter parameters and quality of meat were compared in rabbits of the following breeds. Hyla 2000, Zika, Hyplus, Cunistar. Rabbits (30 d. old at the beginning of the trial) were fed two diets with different crude fibre and fat contents. Rabbits were slaughtered at the age of 77 or 84 days. The lowest weight gains and the highest feed : gain ratio were found in the Cunistar breed. Neither breed nor diet influenced slaughter weight, carcass weight, dressing percentage and other carcass parameters. The highest and the lowest fat content were found in the Cunistar and Zika rabbits, respectively. Meat of older rabbits (84 vs 77 days) had higher dry matter, energy and fat contents, except the Hyla breed.

INTRODUCTION

The breed and quality of feed are important factors that influence the growth and feed conversion in rabbits. Several studies have demonstrated breed - related differences in weight gains and carcass yields (McNITT and LUKEFAHR, 1993 ; RISTIC, 1986 ; OZIMBA and LUKEFAHR, 1991) and also in proportion of anatomical components of carcass (RISTIC, 1986 ; LANGE, 1987). In contrast, TAWFIK and TOSON (1992) found no effect of breed on carcass yield. The purpose of our study was to compare four breeds of broiler rabbits for performance, carcass yield and quality of meat. Rabbits were fed two diets of different composition.

MATERIAL AND METHODS

Weaned rabbits, 30 days of age, were used : Hyla 2000, Zika, Hyplus and Cunistar. Rabbits (28 animals per a genotype) were fed diet I or diet II (14 animals in each group). Diets differed in ingredients and chemical composition (Table 1). The diet II contained more fat and fibre than diet I. Robenidine (a coccidiostat) was added to the feed at 66 mg/kg till 9 wk of age. Rabbits were kept

Table 1 : Main ingredients and chemical composition of rabbits diets

<i>Ingredients</i>	Diet I	Diet II
Barley	13.5	8
Oat	10	25
Wheat	5	-
Wheat bran	20	10
Lucerne meal	25	35
Soya - bean meal	2	2
Sunflower meal	21	
Raps	-	2
Oat hulls	-	4.5
Sugarbeet pulp	-	5
Dried yeasts	-	5
Vitamin - mineral supplement	3.5	3.5
<i>Chemical composition (g/kg)</i>		
Dry matter	907.5	914.0
Crude protein	155	147.6
Fat	19.4	35.4
Crude fibre	135.6	156.4
Ash	67.2	67.6

Table 2 : Comparison of performance, conversion of feed and mortality in rabbits fed diet I or diet II

Breed	Diet		Initial weight ¹	Final weight (g)		Gain ² (g)	Feed conversion ² (kg/kg)	Mortality ² (no.)
			(g)	77 d	84 d			
Hyla	I	average	869	2585	2840	1971 ^b	3.30 ^b	-
		S _e	24	54	58	29	0.18	
Hyla	II	average	818	2590	2833	2015 ^b	3.41 ^b	1/14
		S _e	32	80	36	33	0.09	
Zika	I	average	714	2572	2845	2131 ^c	3.01 ^a	-
		S _e	21	73	57	47	0.11	
Zika	II	average	775	2552	2670	1895 ^b	3.35 ^b	-
		S _e	15	52	146	63	0.06	
Hyplus	I	average	570	2381	2646	2076 ^{ab}	3.52 ^c	3/14
		S _e	12	116	75	61	0.08	
Hyplus	II	average	570	2445	2673	2103 ^b	3.19 ^{ab}	2/14
		S _e	15	79	127	83	0.07	
Cunistar	I	average	820	2425	2497	1677 ^a	3.90 ^d	1/14
		S _e	32	100	191	92	0.13	
Cunistar	II	average	795	2471	2724	1929 ^a	4.06 ^d	3/14
		S _e	27	95	111	87	0.09	

¹ 30 days of age ; ² In the whole growing period (30-84 d) ;

^{a-d} Means in the same column with different superscripts differ (P < 0.05)

in stainless steel mesh cages, two per 0.66 m². Environmental conditions were the following temperature - 16.6°C, relative humidity - 55.2 %, 12 : 12h light : dark daily photoperiod cycle. Both feed and water were available *ad libitum*. One - half of rabbits were killed at the age of 77 days. The remaining rabbits were killed at the age of 84 days. Slaughter measurements included commercial carcass weight with head, dressing percentage (proportion of commercial carcass with head + heart + liver + kidney + perirenal fat from the live weight), and carcass weight components (hindquarter, hindleg, hindleg muscle, perirenal fat). The muscles of the hindleg were analysed to evaluate the meat quality. Gross energy value of samples of meat was computed from the fat and protein contents. The SCHAFFE method was used for the statistical evaluation of data.

RESULTS AND DISCUSSION

The Zika rabbits fed the diet I had the highest average gains and the best feed conversion (Table 2). The Cunistar rabbits, on the same diet, had the lowest gains and the worst feed conversion. Gains were lower in rabbits fed the diet I, with exception of the Zika rabbits. The consumption of feed per 1 kg of gain was lower in rabbits fed diet I, except the Hyplus rabbits. We observed higher mortality in the Hyplus breed (5 animals) than in other breeds. Neither breed nor diet influenced slaughter weight, carcass weight, dressing percentage and other carcass parameters (Table 3). Perirenal fat percentage increased in older rabbits. Meat of older rabbits (84 vs 77 days) had higher dry matter, energy and fat contents, except the Zika breed (Table 4). In meat of rabbits slaughtered at 84 days of age, the highest and the lowest fat contents were found in the Cunistar and Zika rabbits, respectively. No clearly - defined pattern was evident in other parameters.

Table 3 : Slaughter measurements in rabbits fed diet I or diet II

Parameter	Diet	Breed							
		Hyla		Zika		Hyplus		Cunistar	
		average	S _e	average	S _e	average	S _e	average	S _e
<i>At 77 days of age</i>									
Slaughter weight (g)	I	2623	66	2546	66	2363	126	2462	100
	II	2547	79	2623	58	2466	85	2450	93
Carcass weight (g)	I	1457	33	1415	29	1350	72	1398	55
	II	1496	51	1430	42	1371	51	1357	27
Dressing percentage	I	58.9	0.7	59.2	0.8	61.2	0.7	61.4	3.7
	II	61.9	0.5	58.2	0.8	59.5	1.0	59.6	1.3
Hindquarter ¹	I	48.6	0.4	47.6	0.8	47.5	0.5	47.5	0.6
	II	47.3	0.7	48.0	1.1	46.9	0.6	46.6	0.5
Hindleg ¹	I	33.0	0.3	32.0	0.9	32.1	0.6	32.7	0.6
	II	31.7	0.5	32.1	0.6	32.5	0.5	31.2	0.5
Hindleg muscle ¹	I	24.5	0.4	21.9	0.7	22.5	0.5	21.8	0.4
	II	23.2	0.4	21.9	0.4	23.3	0.4	21.6	0.3
Perirenal fat ¹	I	1.2	0.1	1.2	0.1	1.6	0.2	1.9	0.2
	II	1.8	0.3	1.6	0.1	1.6	0.1	2.2	0.2
<i>At 84 days of age</i>									
Slaughter weight (g)	I	2840	58	2845	57	2646	75	2497	191
	II	2833	36	2670	146	2673	127	2724	111
Carcass weight (g)	I	1573	53	1593	24	1499	40	1382	107
	II	1611	30	1487	105	1506	75	1530	64
Dressing percentage	I	58.9	1.7	59.8	0.6	60.4	1.1	59.9	1.3
	II	60.5	0.8	59.1	1.2	59.7	0.5	59.9	0.3
Hindquarter ¹	I	47.6	0.7	47.8	0.5	47.1	0.4	46.9	1.1
	II	46.8	0.8	45.8	0.6	47.8	1.0	47.8	0.7
Hindleg ¹	I	32.5	0.4	32.7	0.4	32.7	0.7	31.6	0.7
	II	31.8	0.5	32.2	0.5	32.9	0.8	32.7	0.7
Hindleg muscle ¹	I	23.1	0.4	22.2	0.4	23.3	0.6	22.0	0.6
	II	22.8	0.4	21.8	0.3	22.0	1.5	22.4	0.5
Perirenal fat ¹	I	1.9	0.2	1.3	0.1	2.0	0.1	1.9	0.2
	II	2.5	0.2	1.4	0.2	2.0	0.3	2.4	0.2

¹ As % of carcass weight

Our findings of the cholesterol concentration in meat of rabbits (0.57 - 0.90 g/kg) are in agreement with those of SCHEIN (1993) : 0.25 - 0.78 g/kg. Dressing percentages and dry matter contents of meat are similar to those reported by COBOS *et al.* (1995). Our results confirm that breed - related differences exist in rabbits. Significant differences were in quality parameters, but no in slaughter variables.

Table 4 : Quality of meat of rabbit fed diet I or diet II. Samples of hindleg muscles were analysed.

Parameter	Diet	Breed							
		Hyla		Zika		Hyplus		Cunistar	
		average	S _e	average	S _e	average	S _e	average	S _e
<i>At 77 days of age</i>									
Dry mater (g/kg)	I	257.4 ^a	1.9	260.4 ^a	2.9	261.2 ^{ab}	1.8	258.4 ^a	2.0
	II	272.0 ^b	5.2	259.6 ^{ab}	2.3	259.3 ^a	2.3	267.9 ^b	4.2
Protein (g/kg)	I	206.7 ^a	2.0	207.0 ^a	1.3	212.7 ^b	0.7	213.3 ^b	1.6
	II	209.4 ^{ab}	1.7	207.3 ^a	1.5	210.9 ^{ab}	1.5	209.5 ^{ab}	0.7
Fat (g/kg)	I	32.1 ^a	1.6	35.7 ^c	3.3	33.6 ^{ac}	1.4	33.9 ^a	2.0
	II	44.0 ^b	5.4	34.8 ^c	3.2	36.8 ^c	2.6	44.5 ^b	4.4
Cholesterol (g/kg)	I	0.64 ^a	0.01	0.64 ^a	0.02	0.62 ^a	0.03	0.69 ^b	0.01
	II	0.71 ^b	0.05	0.66 ^a	0.04	0.64 ^a	0.01	0.63 ^a	0.03
Gross energy (MJ/kg)	I	4.7 ^a	0.1	4.8 ^a	0.1	4.8 ^a	0.1	4.9 ^a	0.1
	II	5.2 ^b	0.2	4.8 ^a	0.1	4.9 ^a	0.1	5.2 ^b	0.2
<i>At 84 days of age</i>									
Dry matter (g/kg)	I	264.0 ^b	3.1	258.9 ^b	1.5	276.9 ^b	2.9	277.6 ^c	4.4
	II	273.9 ^c	3.8	250.9 ^a	4.7	269.2 ^b	4.9	280.0 ^c	5.4
Protein (g/kg)	I	214.1 ^b	1.3	211.8 ^b	1.5	206.0 ^c	0.9	208.2 ^c	1.6
	II	209.8 ^{ab}	2.8	207.8 ^a	2.1	206.5 ^b	1.6	205.7 ^c	3.6
Fat (g/kg)	I	34.6 ^a	3.0	31.3 ^a	1.1	49.8 ^{ab}	2.2	49.8 ^{ab}	3.7
	II	48.1 ^b	4.8	29.2 ^a	4.0	42.5 ^b	4.9	53.4 ^c	8.1
Cholesterol (g/kg)	I	0.63 ^a	0.02	0.60 ^a	0.02	0.81 ^c	0.04	0.76 ^b	0.05
	II	0.63 ^a	0.03	0.57 ^a	0.02	0.73 ^b	0.04	0.90 ^d	0.05
Gross energy (MJ/kg)	I	4.9 ^{ab}	0.11	4.7 ^a	0.04	5.3 ^b	0.09	5.4 ^b	0.15
	II	5.3 ^b	0.16	4.6 ^a	0.16	5.1 ^{ab}	0.19	5.5 ^b	0.26

a - d Means within rows with different supescript differ (P < 0.05)

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