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EXPERIMENTAL RESULTS ON FATTENING PERFORMANCE AND CARCASE CHARACTERISTICS IN NEW ZEALAND WHITE, HYLA AND PROVISAL RABBITS(*)

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Introduction

The effects of crossbreeding on performance of growing rabbits have been studied in some experiments (Kowalsky et all. 1984, Lukefahr et all. 1981, Masoero et all. 1985, Masoero et all. 1986, Vrillion et all 1979).
However, only a limited amount of work has been carried out on crossbred commercial genetic types widely reared in rabbit farming (Chiericato and Marcomini, 1985). The present experiment reports some observations on the fattening performance and carcase characteristics of two crossbred commercial genetic types rabbits often used in Italy.

Materials and Methods

A total of 51 females, weaned at 40 days, were employed. The genetic groups evaluated were New Zealand White and two commercial crossbred types of rabbit named Provisal and Hyla respectively. The animals were housed individually and fed on pelleted all-mash feed "ad libitum". All the animals were reared under identical conditions. The temperature was 16° - 20° C. with a humidity of 65-75%. A cycle of 16 hrs of light and 8 hrs of darkness was used. Growth was individually controlled every seven days and feed intake was measured daily. When the final fattening weight of 2-7 kg was reached, ten animals of each of the three genetic types were fasted for 18 hours, at free water consumption, and were then slaughtered. The slaughtering tecnique followed the procedure described in our previous work (Chiericato and Lanari, 1972). The following method of cutting was employed:

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the head was separated from the carcass at the allanto-occipital joint. The fore legs were removed by dissecting through the scapulo-humeral joint. Two other cuts were made along the caudal edge of the last rib by following a vertical line on the tuber coxae. In this way it was possible to obtain the three remaining cuts, i.e.: the shoulders and thorax region, the loins and flanks, and the rumps, thighs and nates. Analysis of diets were performed according to official methods (A.O.A.C., 1970, Martillotti et all 1987). Gross energy and digestible energy of the diet were estimated (Parigi-Bini and Dalle Rive, 1977). All data were subjected to analysis of variance (Snedecor and Cochran, 1967).

Results and Conclusions

The chemical characteristics of the pelleted diet used in this experiment are shown in table 1. The level of crude protein (16.52% d.m.), crude fibre (16.55% d.m.) and digestible energy (10.69 MJ/kg d.m.) appear to be adeguate for growing rabbits. Data concerning growth rate, feed intake and feed efficiency of the females at the end of the trial are shown in table 2. The Hyla and Provisal females gave the higher daily gain (36.1 and 34.0 g/d) and the better feed efficiency (4.49 and 4.79 g/g) in respect to the control breed (32.1 g/d and 4.90 g/g) but these differences were not significant. In table 3 have been summarised the slaughtering results obtained at the final weight. There were no significant differences among the different genetic types compared. The percentage of warm carcases on empty body weight was very similar for New Zealand White (58.76%), Hyla (58.83%) and Provisal (58.79%) females. The data regarding carcase jointing are presented in table 4. The percentages appear to be similar for rump, nates and thighs, attaining 29.1, 29.5 and 29.1%, respectively for New Zealand White, Hyla and Provisal. Similarly no significant differences were found for loins and flanks, for shoulders and thorax and for the other less important joints. The results from the present work suggest that differences on fattening performance and carcase characteristics among the genetic types taken into account are limited and non significant.

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Summary

The experiment was carried out in order to investigate the performance of pure bred New Zealand Whites, and two crossbred commercial genetic types (Hyla and Provisal) in intensive rabbit production. 17 New Zealand White, 21 Hyla and 17 Provisal unmated females were fed individually on pelleted all mash "ad libitum" in a fattening trial from 1 up to 2.7 kg live weight. Data regarding growth, feed efficiency, dressing percentage and carcase characteristics were recorded. At the final fattening weight there were no significant differences as regards daily gains (32.1; 36.1; 34.0 g/d) and feed efficiency (4.90; 4.49; 4.79 g/g) among the New Zealand White, Hyla and Provisal females. The warm carcase percentage on empty body weight was similar for the New Zealand Whites (58.76%), the Hylas (58.83%) and the Provisals (58.79%). There were non significant differences among the different carcase joints taken into account.

Riassunto

E' stata realizzata una ricerca in cui sono state poste a confronto, in un ciclo di ingrasso, le prestazioni ottenibili da 55 femmine appartenenti a tipi genetici diffusi in Italia. Le femmine, in numero di 17, 21 e 17 nell'ordine per i gruppi Nuova Zelanda Bianca, Hyla e Provisal sono state allevate in gabbia individuale con un mangime composto integrato del commercio somministrato "ad libitum" in un ciclo di ingrasso da 1 a 2,7 kg di peso vivo. Alla fine della ricerca non si sono evidenziate differenze significative negli accrescimenti (32,1; 36,1; 34,0 g/d) e nell'efficienza di conversione della razione (4,90; 4,49; 4,79 g/g/) fra le femmine Bianca di Nuova Zelanda, Hyla e Provisal. La incidenza percentuale della carcassa sul peso vivo netto è risultata simile per la razza pura (58,76%) ed i tipi genetici Hyla (58,83%) e Provisal (58,79%). Non si sono riscontrate differenze fra i differenti tipi genetici per ciò che concerne i vari tagli della carcassa presi in esame.

Table 1 - Chemical composition and nutritive value of feed (means ± S.D.; dry matter basis)(1)

Dry matter	%	88.60±0.84
Crude protein (Nx6,25)	"	16.52±0.47
Ether extract	"	3.31±0.62
Crude fibre	"	16.55±0.89
Ash	"	10.74±0.61
N-free extract	"	52.88±1.64
Calcium	"	1.64±0.17
Phosphorus	"	0.58±0.15
Gross energy	MJ/kg	17.50
Digestible energy	"	10.69

(1) Supplementation per kg of diet: vit. A U.I. 20,000; vit. D_3 U.I. 2,000; vit. E mg 40; vit. K_3 mg 2; vit. B_1 mg 3; vit. B_2 mg 6; vit. B_6 mg 2;vit. B_{12} mg .03; nicotinic acid mg 50; pantothenic acid mg 15; folic acid mg .5; choline chloride mg 1,000; Mn mg 200; Zn mg 125; Fe mg 200; Cu mg 40; J mg 1,5; Co mg 3,5; dl-methionine g 1.

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Table 2 - Average live weight, daily gain and feed efficiency (d.f. 48)

		New Zealand White	Hyla	Provisal	Error mean square
N° of animal		14	21	16	
Days on trial		55.5	47.8	51.0	81.22
Initial live weight	g	996	985	1056	11162
Final live weight	"	2763	2767	2764	7443
Daily live weight gain	"	32.1	36.1	34.0	12.95
Daily intake	"	155.9	161.0	160.5	97.15
Feed efficiency		4.90	4.49	4.79	0.2438

Table 3 - Slaughter data

		New Zealand White	Hyla	Provisal	Error mean square	D.f.
N° of animals		10	10	10		
Live weight at slaughtering		2755	2732	2752	6366	27
% of empty body weight:						
Pelt	%	14.9	15.1	13.7	1.02(1)	27
Head	"	7.1	7.2	7.2	0.33(1)	27
Distal fore legs	"	0.80	0.87	0.93	0.0795(1)	27
Distal hind legs	"	1.8	2.1	2.1	0.09(1)	27
Heart	"	0.34	0.36	0.38	0.0694(1)	27
Liver	"	3.8	3.1	4.0	0.89(1)	27
Kidneys	"	0.70	0.68	0.70	0.0973(1)	27
Kidneys fat	"	1.4	1.3	1.4	1.27(1)	27
Warm carcase	"	58.76	58.83	58.79	4.9659	27

(1) - For the analysis of variance, percentages were transformed according to angular transformation (x' = arcs

df = 27

Table 4 - Carcase jointing percentage

	New Zealand White	Hyla	Provisal	Error mean square
N° of animals	10	10	10	
% of warm carcase weight:				
Head	13.3	13.6	13.6	0.41(1)
Shoulders and thorax region	20.0	19.6	20.4	0.91(1)
Fore legs	12.9	13.2	12.8	0.47(1)
Loins and flanks	21.1	20.8	20.5	1.06(1)
Rump, nates and thighs	30.1	30.5	30.3	1.31(1)
Kidney fat	2.6	2.3	2.4	1.76(1)

(1) - For the analysis of variance, percentages were transformed according to angular transformation ($x' = \arcsin x$)