

Comparison of the Growth Performance of Rabbits of the Hycole Broiler Hybrid in Two breeding models

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Abstract

The aim of the study was to compare the growth performance of a commercial hybrid of rabbits Hycole in small stud (breed 1) with the growth performance of the commercial hybrid Hycole in factory farms (breed 2). In evaluated breed 1 the weight was at weaning 1029.18 g, in the breed 2 it was 1106.04 g. In 49th day in the breed 1 the weight was 1241.75 g and in the breed 2 the weight was 1288 g. At the age of 56 days the weight was in the breed 1 – 1458.19 g and in the breed 2 – 1519.93 g. In 63rd day we found out that the weight in the breed 1 was 1729.75 g and in the breed 2 it was 1781.10 g. At the age of 70 days we found out that the weight in the breed 1 was 2049.84 g and in the breed 2 it was 2122.56 g. In 77th day we found out that the weight in the breed 1 was 2322.14 g and in the breed 2 it was 2481.5 g. At the age of 84 days we found out that the weight of the rabbits in the breed 1 was 2602.89 g and in the breed 2 was the weight 2799.41 g. Average daily increases in a period of a fattening were 37.47 g in the breed 1 and 40.32 g in the breed 2. Average lifetime daily increases were 30.99 g in the breed 1 and 33.33 g in the breed 2.

Keywords: broiler rabbit, growth performance of rabbits, hybrid Hycole, meat of rabbits.

1. Introduction

The aim of the hybrid programs in broiler rabbits is to create synthetic paternal and maternal lines which, when combined, provide a population with optimal production characteristics. Paternal lines mainly accumulate the production characteristics (growth performance, dressing percentage, feed consumption), and maternal lines accumulate mainly reproductive characteristics (fertility, maternal properties, milk production). Specialized meat lines are mainly intended for intense rabbit breeding. These meat lines are very often also kept in traditional breeding, where the purpose is to produce rabbit meat for own family or to sell to consumers. These small breeding conditions are typical for the minimal use of medication. The growth of an organism is influenced by external

factors (nutrition, climatic conditions) and internal factors (heredity, nervous system, internal secretion). Muscle growth depends entirely on the growth of the skeleton. The complementarity of individual genotypes, resp. lines and heterosis effect are among the primary factors that have a positive impact on the economic indicators of production breeding [1]. Growth performance of broiler rabbits is genetically determined and also depends on breeding conditions [2]. The aim of the work was to compare the growth performance of Hycole rabbit commercial hybrids in small breeding conditions with the growth performance of Hycole rabbit commercial hybrids in intensive breeding conditions. Find out whether commercial hybrid breeding is justified in the traditional conditions of rabbit breeding. [3] state effect of restricted feeding time and quantitative restriction in growing rabbits. [4] showed growth and carcass traits of the rabbit a, comparative study of three modes in feed rationing during fattening. Aims of the study [5] were to describe selected

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performance characteristics of Czech local breeds and to compare these breeds with a commercial hybrid (Hyplus).

2. Materials and methods

The monitoring was carried out in two breeds (breed 1, breed 2). There were females of the Hycole meat hybrid rabbit in both breeds.

Breed 1 - housing was done in wooden warrens (0.7 m²) under the influence of the outside environment, there were 12 production females, natural mating was done on the 21st day postpartum, nutrition was secured *ad libitum* (lucerne hay, granulated complete feed), the weaning was realized on the 42nd day postpartum, the litters were housed together in the fattening.

Breed 2 - rabbits were kept in full-wired cages, the females were inseminated on the 19th day postpartum, the nutrition was ensured by a granulated complete feed, the pups were weaned on the 42nd day postpartum, the pups were housed for 2 pcs in the fattening.

In both breeds, rabbits aged 35 to 60 days received medicated feed mixture (robenidine). Water was

given *ad libitum*. The weight was determined once a week with the accuracy of g. We have monitored the growth performance and mortality in breeds. The results were processed in Microsoft Excel.

3. Results and discussion

We have noticed differences in the growth performance of the Hycole broiler hybrid according to the conditions of breeding (Breed 1 small breeding conditions, Breed 2 intensive breeding conditions). Growth performance was always higher in the intensive breeding, probably due to optimal nutrition and housing conditions. More marked differences between monitored breeds were found in live weight on day 77 ($p < 0.05$) and on day 84 ($p < 0.05$). On the 77th and 84th day, we found significant differences between breeds. Although we have found a lower level of growth performance, we can recommend the use of the Hycole commercial hybrids in small breeding conditions. A summary of the growth performance results is stated in Tables 1 and 2.

Table 1. Comparison of the growth performance of Hycole Hybrid in two breeds

Age in days	Breed 1				Breed 2			
	n	x	X _{max}	X _{min}	n	x	X _{max}	X _{min}
42	38	1029.18±90.02	1181	814	35	1106.04±71.19	1284	1001
49	36	1241.75±102.02	1395	1002	33	1288.00±84.66	1385	1112
56	35	1458.19±109.14	1555	1256	33	1519.93±86.41	1684	1268
63	34	1729.75±148.71	1878	1514	33	1781.10±101.93	1945	1424
70	34	2049.84±154.82	2369	1799	33	2122.26±128.47	2314	1784
77	33	2322.14±180.11*	2778	2117	33	2481.50±148.85*	2619	1958
84	33	2602.89±189.58*	3188	2215	33	2799.41±164.73*	3225	2315

* significant differences were found at $p < 0.05$

Table 2. Comparison of daily increases of the Hycole Hybrid in two breeds

Age in days	Breed 1				Breed 2			
	n	x	X _{max}	X _{min}	n	x	X _{max}	X _{min}
42	38	-	-	-	35	-	-	-
49	36	30.37	38.25	22.05	33	26.08	34.43	18.29
56	35	30.92	37.21	24.36	33	33.13	44.57	28.71
63	34	38.79	47.86	34.98	33	37.31	52.57	28.00
70	34	45.73	59.26	32.76	33	48.79	65.57	27.71
77	33	38.90	56.25	31.69	33	51.26	72.71	30.57
84	33	40.11	51.14	33.81	33	45.42	72.14	34.29

[6] reports in the new breed of rabbits (Šariš's giant) at age of 90 days (small breeding conditions) 1971 g (females) and 2017,25 g (males). Our results from the small breeding conditions reach a higher growth performance than [6]. [7] report the average daily increases hybrids in fattening 36,83 – 58,02 g. [8] show average daily increases for broiler hybrids 35,93 g. [9] reports that they found average daily increases at 42 – 49 days 47,61 – 51,43 g; 49 - 56 days 39,65 – 49,56 g; 56 - 63 days 39,69 – 43,10 g; 63 - 70 days 39,80 – 43,77 g; 70 - 77 days 33,57 – 42,10 g and aged over 77 days show increases 40,00 – 45,43 g. Similarly, [10] also noticed a similar tendency for breeding broiler hybrids in small breeding conditions. [11] detected an average weight 2586,51 g in 76,26 days in Grimaud genotype hybrids. Similar results of the growth performance are reported by [12], who evaluated the use of a huge breed in paternal position in the production of broiler hybrids. [12] shows the weight at the 77th day 2271,20 g and day 84th day 2562,20 g in the line of meat rabbits. [5] described selected performance characteristics of Czech local breeds and to compare these breeds with a commercial hybrid. Seven original Czech breeds were included in the study: the giant breed Moravian Blue (MB), the medium breeds Czech White (CW), Czech Spotted (CS), Czech Solver (CSO), Moravian White of Brown Eye (MW) and the small breeds Czech Black Guard Hair (CB) and Czech Gold (CG) and the Hyplus rabbits. Growth of the rabbits was significantly ($P=0.001$) affected by genotype; MB and CW breeds grew non-significantly faster than Hyplus. The highest daily weight gain was observed in MB (42.6 g/d) and the lowest was in CB (23.9 g/d). Slaughter characteristics mostly correlated with live weight; the highest dressing-out percentage was in the small breed CG (62.0%) and the lowest in the Hyplus rabbit (57.0%).

4. Conclusions

The Hycole Broiler Hybrid in small breeding conditions reached a lower level of growth than in intensive breeding conditions. The lower level of growth is associated with worse microclimatic conditions in small breeding conditions than in intensive breeding conditions where the temperature is maintained at 15-25 ° C. In spite of the lower growth performance, we can

recommend the Hycole Broiler Hybrid to the small breeding conditions, where the goal is to produce rabbit meat for consumers.

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