PROFITABILITY OF ALTERNATIVE POULTRY SYSTEMS

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ABSTRACT: In Brazil there is a growing demand for differentiated products of poultry, however there are no information about the cost of producing them. Thus, this study evaluated the optimun performance, using experimental data from three strains of chickens (1 – Ross 308 under food restriction, 2 - French Nacked Neck genetics (ISA JA 57), and 3 - Embrapa 041) in three farming systems (T1 - confined, T2 - semi-confined and T3 - released). In T2 and T3 the feed was supplemented with fodder. Considering the price of R$ 0.69/kg per feed, R$ 1.40/chick hick, R$ 0.75/chick conventional and R$ 3.00/kg for live chicken we found that the optimum age slaughter was 63 days for Genetics and the Genetics in the T2 C and 70 days for the rest. The weight and profit per bird marketed for strain A was: a) 2.33 kilograms and $ 2.46 for the T1 b) 2.36 kilograms and $ 2.39 for T2 and c) 2,32 kg and R$ 2.54 for T3. For the B-lineage the results were: a) 2.10 kilograms and R$ 0.89 for the T1 b) 2.08 kilograms and R$ 0.54 for T2 and c) 2.04 kilograms and R$ 0.69 for T3. For the C strain they were: a) 2.47 kilograms and R$ 1.20 for T1 b) 2.24 kg and R$ 1.04 for T2 and c) 2.34 kg and R$ 1.00 to T3. So the superior profitability of the line A allow the sale of a differentiated product from commercial line with prices intermediate leading a more dynamic market.
KEYWORDS: poultry system, economics evaluation, alternative production

INTRODUCTION

The poultry industry in Brazil had a significant development in the last 40 years. From an insignificant production and consumption in the 70's, became a major producer and consumer in recent years. Therefore, in 2011, Brazil was the fourth largest producer and largest exporter of broiler meat. Per capita consumption in 2011 reached 46 kg, being the most consumed meat in Brazil.

The boom of broiler meat consumption in Brazil was due to the price, ie the ability to produce at low costs. Currently, the increased income of the population in Brazil brought the opportunity for growth of differentiated products, even with a higher cost. For the poultry producer, profitability is the determining factor of supply and lack of studies covering this scope stimulated the preparation of this study. Thus, the objective of this study was to evaluate the minimum cost of production for alternative production systems of broilers.

MATERIALS AND METHODS

The experiment began on April 15, 2002 and was conducted at the Experimental Farm of Suruvi at Embrapa Swine and Poultry, Concordia, SC. Three strains of broiler chicks were housed in mixed batches: 1) Ross 308 (strain 1), 2) Caipira French known for Naked Neck Label Rouge (strain 2), and Embrapa 041 colonial broiler (strain 3). Birds were divided into three farming systems: T1) Confined with a standard density for broilers (10 birds/m2), T2) confined at low density and supplemented with vegetables

and pasture, and T3) confined until 35 days of age and after transferred to mobile coops with access to paddocks with electric fence.

The diet contained 3200 Kcal/kg of feed and 22% of crude protein in the initial phase (1-28 d old), 3200 kcal/kg and 20% of crude protein in the growth phase (29-63 d old), and 3200 kcal/kg and 18% of crude protein in the final phase (64-91 d of age).

Ross broilers were raised under feed restriction from 21 days of age, to allow the birds of this lineage a slow growth rate and reach slaughter weight at 91 days of age. The objective was to build growth curves to assess their fitness to alternative systems. The broilers, the feed offered and left over were weighed weekly.

The experimental design was a randomized block with factorial arrangement of treatments (3 x 3): 3 lines and 3 producing systems, with four replicates of 38 birds per replicate in the confined system and 100 birds per replicate in the semi-confined system. The economic evaluation was performed by calculating the cost of production. For this calculation the methodology described in Santos Filho et al. (1998) and Canever et al. (1996) was used.

In the analysis of return, average production costs for the different treatments were calculated, given slaughter age ranging between 7 and 91 days. Based on production costs and revenue, the treatment with the highest profitability was identified.

RESULTS AND DISCUSSION

In this study were used the average prices in Santa Catarina in January 2012: $ 0.69/kg of feed, $ 1.40 per hick (alternative) chick, $ 0.75 per conventional chick, and $ 3,00/kg of live chicken.

Table 1 - Maximum Profitability and age and weight at slaughter of broilers of different strains raised in three farming systems.

Strain 1			
	T1	T2	T3
Maximum Profitability	2,46	2,39	2,54
Slaughter age	63	63	63
Slaughter weight	2,33	2,36	2,32
Strain 2			
	T1	T2	T3
Maximum Profitability	0,89	0,54	0,69
Slaughter age	70	70	70
Slaughter weight	2,10	2,08	2,04
Strain 3			
	T1	T2	T3
Maximum Profitability	1,20	1,04	1,00
Slaughter age	70	63	70
Slaughter weight	2,47	2,24	2,34

The results show that the optimum slaughter weight changed depending on the genetics and processing. The slaughter age also shows little variation, standing in 63 and 70 days in 50% of the results. Slaughter weight and age are influenced by the ratio of prices of chicken and feed. Therefore, every producer should know the growth curve

of his animals and thus determine the optimum slaughter weight at each market situation, within a range acceptable to the market.

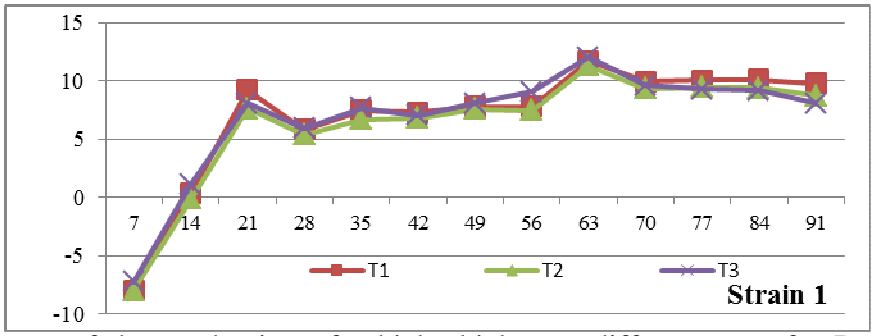

Figure 1 - Return of the production of a hick chicken at different ages for Ross 308 genetics.

Ross genetics had the highest profitability per bird housed during the year in all treatments, because of its greater feed efficiency. Its use can improve the profitability of the producer in the short term. In the long run increased the consumer surplus by the possibility of marketing a product with lower prices. Consumer surplus increases, because people can acquire a larger volume of products by lower price. On the other hand, the producer surplus increases if the increase in production occurs in larger amounts than the drop in prices, fact expected for this type of market.

The possibility of using a more efficient strain for meat production creates the possibility of sale an intermediary product at a lower price. Thus, in terms of trading it is to be capturing the entire consumer surplus and allowing the increased availability of consumer products to improve their welfare.

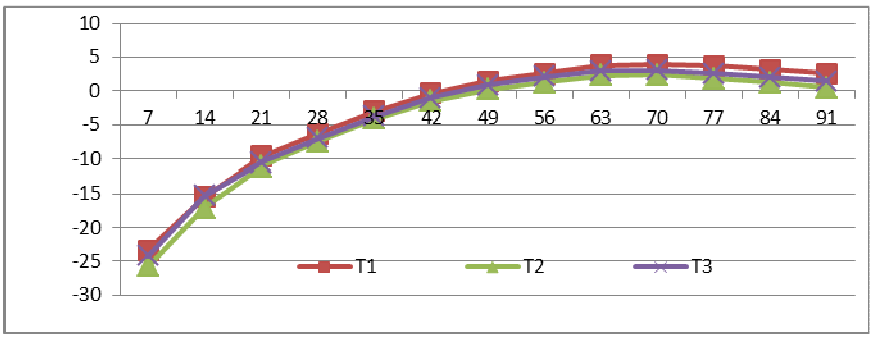

Figure 2 - Return of the hick chicken production at different ages for French Nacked Neck genetics (ISA JA 57)

The return curves fot the strains 2 and 3 follow, as expected, a quadratic representation. This curvature is due to loss of feed efficiency of the bird throughout its life cycle that constitutes what economists call "diminishing returns to scale." In line 1 the quadratic representation of profitability is not due to food restriction imposed on the chicken.

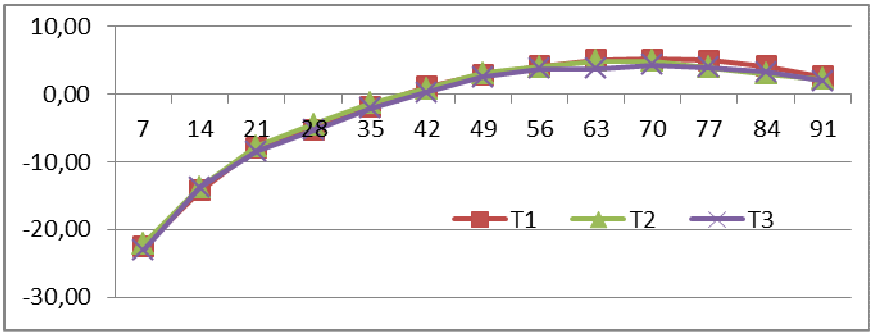

Figure 3 - Return of the production of a hick chicken at different ages for Embrapa 041 strain.

If there is a change in prices, the weight and age at slaughter will change. The fall in costs or increase of income increases slaughter weight and vice versa.

CONCLUSIONS

Given the prices used in this study, the lower cost strain was Ross 308. All strains evaluated showed positive economic results. The weight and slaughter age are dependent on the ratio of prices used.

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