

# THE IMPACT OF FOOD ON THE DEVELOPMENT AND BEHAVIOUR OF CHICKENS (*Gallus gallus domesticus*, L.)

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## 1. Introduction

It is well known that the aim of big meat industries is to raise a large number of chickens in a very short period of time, with the smallest consumption of food. However, this brings up the question of how and in what conditions they are raised, as well as how such breeding affects their behaviour and the quality of meat. Therefore this study was conducted on two groups of chickens. The aims of this study were to test how the type of food affects the development and behaviour of chickens, to determine the way in which the breeding is more economical and to determine the quality of meat considering the type of food.

## 2. Materials and methods

The study was conducted in two separated cycles, one in the autumn of 2015 on 10 chickens, and the other in the autumn/winter period of 2016 on 20 chickens of *Gallus gallus domesticus* L., Cobb breed (chickens for fattening). The chickens were divided into two groups (1 and 2). They were housed in two large cardboard boxes, and heated with ordinary light bulbs, through which they also received the required amount of light. They were raised for 38 days in 2015 and for 45 days in 2016. Group 1 was first fed with factory-made food called BROSTARTER 21% (price: 43 kuna (ca. 5,7 Euro) /10 kg), and then from 4 weeks of age, with the second mixture called BROGROVER 18% (price: 39 kuna (ca. 5 Euro) /10kg). Group 2 was fed with ground corn produced on the family farm (price: 15 kuna (ca. 2 Euro) /10 kg). Every seven days chickens of both groups were weighed and the data on the mass of each individual and the amount of food consumed (in kg) were recorded. Food and water were supplied as needed, and the bedding was also changed as needed. A simple kitchen scale was used for weighing the chickens. At the end of the experiment, an organoleptic evaluation of the quality of meat was made.

## 3. Results

The results of the study showed (Figure 1) that the chickens in the group 1 had a larger total mass (31790 g), they were sluggish and it was difficult for them to move. The chickens in the group 2 had a lower total mass (18350 g), were more active, livelier and could move normally (Figure 1). After the organoleptic assessment it was concluded that the meat of the chickens fed with home-made food was more delicious and less tough. Statistical analysis by Mann-Whitney U test showed that the differences in weight and meat scores between the two groups were statistically significant. An analysis of the total amount of financial resources spent on home-made and factory-made foods was made. It showed

that 49.4% less resources would be spent to reach the same mass of the chickens if they were fed with home-made foods.

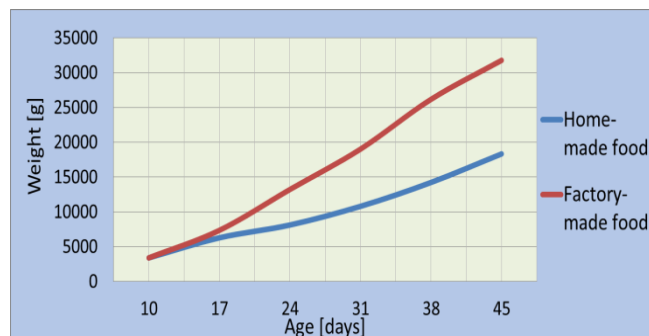


Figure 1 - The dependence of the weight of two groups of chickens in relation to different food

## 4. Conclusion

Chickens that eat the factory mixture grow considerably faster than chickens eating ground corn, and the difference in weight between these two groups is statistically significant. It takes about 75% more time for the chickens fed with ground corn to reach the target weight. The total quantity of ground corn is 49.4% cheaper than the factory mixture for the same chicken weight, although more corn is needed to reach it. The meat of the chickens fed with ground corn is delicious, while the meat of the chickens fed with factory mixture is much tougher. The type of food significantly affects the rate of chicken growth and the taste of chicken meat. The research was carried out on 20 chickens, but the results would have been more accurate if the research had been carried out on a bigger number, for example on a sample of 100 chickens.

## 5. References

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