BIOLOGICAL FACTORS INFLUENCING MEAT PRODUCTION IN POULTRY

CHIRILĂ COSMINA ANDREA[1], PETROMAN I. [1], PETROMAN CORNELIA[1], VARGA MELANIA[1], TURC B. [1], MARIN DIANA[1]
[1]***USAMVBTimişoara, Faculty of Agricultural Management***
e-mail: cosminachirila@yahoo.com

Abstract: *Poultry production is the result of the action and interaction of heredity and environmental factors. The number and nature of these factors, the physiological mechanisms of their action and their share of the production, though not enough known, raise a series of questions for animal husbandry regarding the continuous improvement of poultry raising, rearing and finishing technologies. However, in continuous interaction, the two groups of factors influencing poultry production are studied separately because of methodological requirements, i.e. biological factors (breeds) and environmental factors are related to raising and finishing technologies.*

Keywords: *meat, production, heredity factors, environmental factors*

INTRODUCTION

Poultry production is the result of the action and interaction of heredity and environmental factors. The number and nature of these factors, the physiological mechanisms of their action and their share of the production, though not enough known, raise a series of questions for animal husbandry regarding the continuous improvement of poultry raising, rearing and finishing technologies [2,5,6, 12].

Though in continuous interaction, the two groups of factors influencing poultry production are studied separately because of methodological requirements, i.e. biological factors (breeds) and environmental factors are related to raising and finishing technologies. [3,7,10]

The quantitative and qualitative production of meat is influenced by numerous biological factors, among which species, breed, gender, age, environment, precocity, individuality, and rate of feathering, growth intensity, and colour of feathers, fodder valorising capacity, yield upon slaughtering, prolificacy, and improvement work. The intensity of their influence is different and, as such, there is graduation in the determination of meat production. [4,8,9,11]

MATERIALS AND METHOD

To carry out this study, we used information regarding the poultry meat production and the factors influencing the latter; we also appealed to information bulletins, articles in local media, specialised books and statistics by the institutions of statistics.

RESULTS AND DISCUSSION

Species and *breed* influence both quantitative and qualitative production. Thus, the highest body weight is in turkeys and geese (18-20 kg in heavy breeds), while in chicken and duck it is 3.5-5 kg, in guinea hens 1.5-2.5 kg, in pigeons 0.8-1.2 kg, and in quails about 150 g. The differences between breeds, particularly in chickens, are memorable: they vary between 500 g in small breeds and 5 kg in heavy breeds.

We need to mention that between commercial hybrids there are specific differences.

As for *gender* and *age*, though upon hatching the body weight of males and females is almost equal: in the process of growing, this difference increases in favour of males. In turkeys, the differences can be even greater: sometimes, males can weigh double the weight of females.

From the perspective of individuality, we can say there is great variability between individuals. In general, precocious poultry lay smaller eggs at the beginning and weigh less.

Growing rate is characteristic to domestic fowl, and it depends on breed, line, gender, and age. Thus, until the age of 5-6 months, it decreases from turkeys to chickens, via duck.

If we analyse growing intensity over shorter periods, we can see that all species start with a more intense growth (which is exploited in the technology of meat poultry production through feeding and proper conditions).

In close relation with growth intensity, the *fodder valorising capacity* is stronger during intense growth periods. In fact, this factor also determines the economic efficiency of broiler chicken production through specific minimum consumptions during intense growth periods in all the species and breeds of poultry valorised for their meat at early ages.

Feathering rate is a feature that draws our attention in chickens and ducklings because of the early age of slaughtering. In general, the feathering rate correlates positively with growth intensity and carcass quality.

Though chickens and turkey poults feather quicker than ducklings and goslings and females are more precocious from this perspective than males, in meat production what matters is the feathering rate in both genders and all species.

The chick, duckling, gosling, or poult that feathers quicker enjoys thermal regulation earlier and better feed valorisation because of heat loss. At the same time, carcass quality is higher: after plucking, the skin is clean with no down or aciculate feathers, which allows early valorisation.

As for the *colour of the feathers*, white is preferred in all species and breeds for meat. Carcass quality is high and the by-product, feathers, is more appreciated.

Yield upon slaughtering is conditioned by the ratio between biomass and the development of different body areas. Undoubtedly, poultry that have pectorals, hips and legs better developed also yield better and are higher quality.

Table 1. Yield upon slaughtering and share of anatomic carcass areas

Specification	Broiler chicken (33 days)	Broiler chicken (48 days)
Commercial profitability	70.85±0.15	81.14±0.25
Head, neck, shinbones	18.49±0.18	18.2±0.23
Wings, back	33.51±0.22	33.18±0.19
Hips, legs, breast	43.90±0.12	50.08±0.17

Source: our own data

Prolificacy and *fecundity* influence directly meat production since it conditions the number of products. The number of eggs, fecundity and hatching capacity are important particularly in turkeys and geese given the much smaller number of eggs produced during a production period.

We also need to emphasise the heritability of some important features in meat poultry selection such as growth precocity, development of pectorals, and length of sternum. We should also note maximum attention that needs to be paid to the selection of body weight compared to other features.

CONCLUSIONS

We can say that there is a series of factors that influence directly poultry meat production – and this is why they need to be observed. If we take into account both heredity and environmental factors, the final result is a good one, with meat superior quantitatively and qualitatively.

Using on medium animal farms commercial lines and hybrids we can improve yields upon slaughtering and the growth and finishing period can be reduced from six to 4-5 weeks when the difference in yield is not significant statistically.

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