INFLUENCE OF SLAUGHTER YIELD ON INDIVIDUAL POULTRY PRODUCTION

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Abstract: Yields upon broiler chicken slaughtering at different ages can influence the growth profitability and have an important influence on the chicken farm production. When slaughtering chickens at the age of 38 days, the valuable portions of the carcass such as breast and legs represent 51.77±0.14 of the carcass weight, a commercial yield considered good for the genetic material studied. To increase economic profitability of a chicken farm, we need to purchase high genetic value hybrids, to make investments in the exploitation technology (i.e., reduce the slaughtering age with 5 days), all of which results in a diminution of the expenses for raising broiler chicken.

Keywords: broiler chickens, commercial profitability, individual production

INTRODUCTION

Raising poultry is an important branch of animal husbandry due to both their production features and biological features [1,4].

The main produce from poultry are eggs, poultry, fat liver, while the by-products from poultry are downs, feathers, wastes, and permanent litter (slaughter wastes).

Chicken is very much demanded by consumers due to its particular taste, to the fact that it can be cooked easily and in very many ways, due to its particular digestibility and high nutritious value [3,7,9].

To ensure animal protein in the world population’s nutrition (a population steadily increasing in number), raising poultry plays a more and more important role. In the future, world poultry production will increase, but this increase will very much depend on economic productivity and on the cost price of the produce. The increasing trend of poultry consumption and, hence, of the meat consumption at world level, makes us say that broiler chicken production will be above all other meat assortment due mainly to the selling price of the produce and to consumers’ preferences [2,6,8].

Yield upon slaughtering and the share of the carcass portions depend largely on the ratio between biomass and the development of the different body areas: the birds whose pectoral, thigh, and leg muscles are better developed also have the best slaughtering yield and are high quality. Slaughtering yield (Y%) is the ratio between live weight and carcass weight after removing the non-edible portions, a ratio calculated with the formula:

\[ Y\% = \frac{[\text{Carcass weight (kg)} / \text{Live weight (kg)}]}{100} \]

The most important portions after cutting a chicken’s carcass are the portions whose muscular weight is important (breast, thigh, and leg). Thus, in the chicken breeds specialised for broiler production, the share of muscles in these portions is larger than that of laying chicken or of poultry breeds or hybrids raised on family farms[5, 10].

MATERIAL AND METHOD

To determine the slaughtering yield and the results of broiler chicken carcass cutting, we carried out a research on an intensive broiler chicken farm where they slaughtered broiler chickens at different ages to see the influence of slaughtering yield on
technical indices of recovery and economic profitability through the diminution of the growth period.

RESULTS AND DISCUSSION

Knowing the slaughtering yield is one of the most important production yields in broiler chicken production. Yield is commonly related to the weight of the warm carcass, i.e. right after producing it. To properly establish the yield, we need to refrigerate the broiler chicken carcasses for at least 12 hours (cold yield). The difference between warm yield and cold yield varies depending on the type of broiler chicken, but the slaughtering weight is, on the average, 2% larger. To assess economic results, slaughterhouses have established recovery indices depending on live weight, indices materialised in the standards specific to the slaughtering sector for meat, in general, and for poultry, in particular.

Technical recovery indices in poultry processing in a slaughterhouse in our research area (percentage of the live weight) are carcass (70-8-%), skin and feathers (45%), organs (4%), legs (2.5-3%), stomach (2.5%), intestines (1-1.5%), all types of fat (0.5-1%), and blood (3%).

Technical recovery indices in the broiler chicken we studied that we obtained from the slaughterhouse are presented in Table 1.

Table 1. Technical recovery indices in broiler chickens

<table>
<thead>
<tr>
<th>Shares (%)</th>
<th>1st quality produce</th>
<th>2nd quality produce and organs</th>
<th>By-products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carcass</td>
<td>81.31±0.23</td>
<td></td>
<td>Blood</td>
</tr>
<tr>
<td>Head</td>
<td>1.92±0.78</td>
<td></td>
<td>3.43±0.69</td>
</tr>
<tr>
<td>Neck</td>
<td>2.12±0.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lungs</td>
<td>3.14±0.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liver</td>
<td>1.78±0.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stomach</td>
<td>1.37±0.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feathers</td>
<td>4.31±0.36</td>
<td></td>
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</tr>
</tbody>
</table>

We can see that the share of the carcasses we analysed have an average of 81.31±0.23%, i.e. much above the mean mentioned in literature nationwide, but similar to the performances worldwide, which allows us to draw the conclusion that at national level performances in the poultry raising sector are high due to the technological investments, to the management and particularly in the high-value genetic biological material from the farms specialised in the production of broiler chickens.

By cutting broiler chicken carcasses into commercial pieces depending on the market broiler chicken demands, we can get such anatomic portions as breast, thighs, legs, and backs. The commercial yield and the share of anatomic parts in the broiler chickens we analysed (percentage of the carcass) was 80.34±0.18%, as shown in Table 2.

Table 2. Commercial yield and share of anatomic parts in broiler chickens

<table>
<thead>
<tr>
<th>Anatomic areas</th>
<th>% of the carcass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast</td>
<td>22.57±0.12</td>
</tr>
<tr>
<td>Thigh, leg</td>
<td>29.20±0.16</td>
</tr>
<tr>
<td>Wings</td>
<td>11.87±0.17</td>
</tr>
<tr>
<td>Back</td>
<td>20.86±0.23</td>
</tr>
<tr>
<td>Total 1st quality</td>
<td>51.77±0.14</td>
</tr>
</tbody>
</table>
We can draw the conclusion that it is important, in broiler chickens, to develop the pectoral, thigh, and leg muscles which, together, represent more than half of the carcass (51.77±0.14%), because broiler is marketed depending on the following three categories:
- breast, thighs, and legs;
- head, neck, wings, and back;
- organs (liver, heart, and stomach).

In order for a broiler chicken exploitation to be economically profitable, we need to analyse exploitation expenses, a basic tool in the diagnose and assessment of performances.

**CONCLUSIONS**

In slaughtering broiler chicken at the age of 38 days, the recovery indices were 81.21±0.23% in the carcasses while the by-products represented 4.31±0.36% in feathers and 3.43±0.69% in blood.

Second quality produce (head, neck, and legs) ranged between 1.92±0.78% in heads, 2.12±0.59% in necks, 3.14±0.47% in legs, while there were 1.78±0.15% in liver and 1.37±0.67% in stomach.

By cutting the carcasses into pieces, the commercial yield and the share of anatomic parts were represented by 22.57±0.12% in breast and by 29.20±0.16% in thighs and legs.

The share of the high quality areas (breast, thighs, and legs) was above the mean of 51.77±0.14% of the carcass weight, which allows us to draw the conclusion that reducing the period of exploitation to 38 days can have a beneficial effect on the overall exploitation costs and does not have a negative influence on the commercial yield.

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