Evaluation of some meat traits in two guinea fowl genotypes
Untersuchung von Fleischqualitätsmerkmalen bei zwei Perlhuhngenotypen

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Introduction

Guinea fowl have accompanied man since ancient times. These birds are vigorous, adapt well to local climatic conditions, and are resistant to many poultry diseases (NWAGU and ALAWA, 1995). Guinea fowl was raised in Poland before World War II in small flocks. In the 1960s, guinea fowl farming was popularized to expand the range of poultry meat products in Poland and for export (KOZACZYNSKI, 1999). Today, guinea fowl in Poland are mainly raised in backyard flocks.

Among European countries, France, Belgium, Italy and Scandinavian countries show increasing interest in raising guinea fowl, the meat of which is valued for its taste and nutritional properties (BAEZA et al., 2001a). France is the largest producer and consumer of guinea fowl meat in Europe, with Italy ranking second. In 2004, France produced approximately 42,000 tons of guinea fowl meat, and annual per capita consumption was 0.6 kg (AUDRAN, 2005). In accordance with European marketing standards for poultry meat, guinea fowl can be slaughtered at 82 days of age in the litter system and a minimum age of 94 days in the free-range system (PUDYSZAK et al., 2005).

Today in France, Italy, Belgium and Hungary the following guinea fowl varieties are distinguished based on plumage colour: pearl (grey), peacock, lilac, blue, cream and buff. In the USA and Canada, pearl (grey), white and lavender guinea fowl are raised. Pearl (grey) guinea fowl are most popular in Poland (ŚWIERCZEWSKA et al., 1999). The body weight and dimensions, and the growth rate of different guinea fowl varieties were determined, among others, by AYORINDE et al. (1988), KOZACZYNSKI (1998), MAN DAL et al. (1999), FANI et al. (2004), SANTIA GO et al. (2007) investigated the effect of guinea fowl origin on their postmortem meat quality traits. BAEZA et al. (2001a) found that guinea fowls’ genotype, sex and rearing conditions have a large effect on carcass weight. Percentage of breast muscles in carcass was significantly affected by genotype, and sex had a significant effect on the content of abdominal fat and skin with subcutaneous fat. When comparing a native variety of guinea fowl with two types of guinea fowl broilers, SANTIA GO et al. (2007) found a significant effect of genotype on increasing the weight and tenderness of breast muscles, and the weight of thigh muscles.

This study was motivated by the lack of research comparing the growth traits, feed conversion and tissue composition of white and pearl guinea fowl raised in Europe. A more thorough understanding of production traits in different guinea fowl varieties may contribute to increasing the production of meat from this poultry species. Therefore, the aim of this study was to determine the effect of origin (variety) on growth traits and slaughter value of guinea fowl reared to 12 weeks of age. Relationships were also calculated between body weight, body dimensions and some postmortem traits in guinea fowl.

To accomplish this objective, the following hypotheses were formulated: 1) meat traits, including carcass tissue composition, differ between the guinea fowl genotypes under comparison; 2) different origin of the guinea fowl may contribute to differences in live biometric characteristics and some postmortem traits.

Materials and methods

The experimental material used in this study consisted of 34 day-old guinea fowl (Numida meleagris L.) of white variety (♂ = 16, ♀ = 18) and 34 guinea fowl of pearl variety (♂ = 19, ♀ = 15), which were hatched from eggs obtained from flocks of unselected birds. During the 12 weeks of growth, guinea fowl were confined in an environmentally controlled facility. In the first four weeks, birds were kept in two boxes on plastic mesh floor (each with an area of 1.05 m²), and then in straw-bedded pens (each having an area of 12 m²).

Birds were fed commercial diets ad libitum. They received a diet containing 19.5% crude protein and 2950 kcal (12.4 MJ) ME to 8 weeks of age, and a diet containing 17.5% crude protein and 3000 kcal (12.6 MJ) metabolizable energy from 9 to 12 weeks of age. In both diets, tryptophan was the first limiting amino acid.

The amount of feeds was recorded for each variety separately throughout rearing, and the amount of feed refusal was weighed at 8 and 12 weeks of rearing. These data were used to calculate the average amount of feed consumed by bird and feed conversion.

Birds were individually weighed using electronic scales (Medicat, Zurich, Switzerland) on day 1 and at 4, 8 and 12 weeks of growth. This made it possible to determine daily weight gains in consecutive stages and during the
entire growth period. From 4 weeks of age, birds were
tape-measured to the nearest 1 mm for body length (between
the first cervical vertebra and posterior edge of the ischium),
length of trunk (between shoulder joint and posterior edge
of the ischium), length of keel (from the anterior to the
posterior edge), chest circumference (behind wings through
anterior edge of the keel and middle thoracic vertebra),
and length of shank (between the hock joint and bottom
area of fourth toe at its base). Thickness of shank (in the
middle portion between anterior and posterior surfaces)
was measured to the nearest 0.01 mm with electronic cali-
pers. Body weight and body dimension values were used
when calculating the conformation indices of massiveness
(percentage of body weight in kg to trunk length in cm),
compactness (percentage of chest circumference to trunk
length in cm) and long-leggedness (percentage of shank
length to body length in cm).

At 12 weeks of growth, 20 guinea fowl (10 females and
10 males) of each colour variety were selected for dis-
section. Their body weight was similar to the mean value
for a given variety. Sex was determined from secondary sex
characters and additionally during evisceration of car-
casses. After slaughter, plucking and evisceration, car-
casses were chilled at 4°C for 18 h, which was followed by
dissection (carcass cutting) according to the method re-
ported by ZIOLECKI and DORUCHOWSKI (1989). Carcasses
were dissected into neck without skin, wings, skin with
subcutaneous fat from the whole carcass, breast muscles,
leg muscles, and the remainders. Individual components
were weighed on electronic scales (Medicat, Zurich, Swit-
zerland) to the nearest 0.1 g and their percentages in the
weight of eviscerated carcass with neck were calculated.

The numerical data were analysed statistically to calcu-
late arithmetic means (mean) and standard error (SE) of
the traits using STATISTICA software. Coefficients of cor-
relation (r) were calculated for each guinea fowl variety
separately between body weight, body dimensions and
some carcass components. Significance of differences for
the analysed traits between the guinea fowl genotypes and
sex were determined using Student’s t-test.

Results
The mean body weight of the analysed guinea fowl varieties
increased with age (Table 1, Figure 1). The body weight of
day-old guinea fowl was 29.2 g for white variety and
23.9 g for pearl variety. Over the 12 weeks of growth, it
increased to 1054 g and 1081 g, respectively. To 4 weeks
of growth, white guinea fowl had significantly greater body
weight compared to pearl guinea fowl. At the end of 8 and
12 weeks of growth, pearl guinea fowl weighed more than
white guinea fowl. Significant differences were found only
in 8-week-old birds (Table 1).

The body dimensions of the analysed guinea fowl varie-
ties increased until 12 weeks of age (Table 1), which indi-
cates that body growth did not cease. Compared to pearl
guinea fowl, white guinea fowl had significant longer trunk
with neck (body), trunk, breast-bone and shank at 4 weeks.
Eight-week-old pearl guinea fowl had significantly longer
body and shanks, and significantly greater chest circumfer-
ence, and at 12 weeks they had significantly shorter trunk
and breast-bone compared to white guinea fowl. Statisti-
cally significant differences between males and females
within a given genotype were only found for body length
in 4-week-old white guinea fowl.

The compared guinea fowl varieties differed signifi-
cantly in the indices of massiveness (weeks 8 and 12) and
compactness (weeks 4 and 12) in favour of pearl guinea
fowl. In both varieties, the index of long-leggedness was
similar during the whole rearing period (Table 2). As
regards the index of massiveness, significant differences
were also found between male and female grey guinea
fowl at 12 weeks of age.

The highest daily weight gains were noted in white
guinea fowl between 8 and 12 weeks of age and in pearl
guinea fowl between 4 and 8 weeks of age (Table 3). Daily
weight gains of pearl guinea fowl between 4 and 8 weeks
(29 and 56 days of age) were significantly (P ≤ 0.05) higher
than in white guinea fowl.

The data presented in Table 3 suggest that pearl guinea
fowl had a slightly higher feed consumption than white

Table 1. Body weight and dimensions of two genotypes of guinea fowl during growth (n = 34)

<table>
<thead>
<tr>
<th>Trait</th>
<th>Characteristics</th>
<th>Age (weeks) – variety</th>
<th>White</th>
<th>Pearl</th>
<th>White</th>
<th>Pearl</th>
<th>White</th>
<th>Pearl</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>8</td>
<td></td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Body weight (g)</td>
<td>mean</td>
<td>282 a</td>
<td>263 b</td>
<td></td>
<td>659 a</td>
<td>718 b</td>
<td>1054</td>
<td>1081</td>
</tr>
<tr>
<td></td>
<td>SE</td>
<td>3.80</td>
<td>6.10</td>
<td></td>
<td>9.00</td>
<td>13.2</td>
<td>12.5</td>
<td>11.6</td>
</tr>
<tr>
<td>Body length (cm)</td>
<td>mean</td>
<td>19.1 a</td>
<td>17.4 b</td>
<td></td>
<td>28.0 a</td>
<td>28.9 b</td>
<td>32.6</td>
<td>32.2</td>
</tr>
<tr>
<td></td>
<td>SE</td>
<td>0.200</td>
<td>0.300</td>
<td></td>
<td>0.200</td>
<td>0.200</td>
<td>0.300</td>
<td>0.300</td>
</tr>
<tr>
<td>Trunk length (cm)</td>
<td>mean</td>
<td>11.4 a</td>
<td>10.5 b</td>
<td></td>
<td>17.4</td>
<td>18.1</td>
<td>20.9</td>
<td>19.9</td>
</tr>
<tr>
<td></td>
<td>SE</td>
<td>0.200</td>
<td>0.200</td>
<td></td>
<td>0.200</td>
<td>0.200</td>
<td>0.200</td>
<td>0.200</td>
</tr>
<tr>
<td>Breastbone length (cm)</td>
<td>mean</td>
<td>6.40 a</td>
<td>5.70 b</td>
<td></td>
<td>8.90</td>
<td>9.20</td>
<td>11.3</td>
<td>10.8</td>
</tr>
<tr>
<td></td>
<td>SE</td>
<td>0.100</td>
<td>0.100</td>
<td></td>
<td>0.100</td>
<td>0.100</td>
<td>0.100</td>
<td>0.100</td>
</tr>
<tr>
<td>Chest circumference</td>
<td>mean</td>
<td>17.1</td>
<td>16.9</td>
<td></td>
<td>24.7</td>
<td>25.6</td>
<td>30.8</td>
<td>31.1</td>
</tr>
<tr>
<td></td>
<td>SE</td>
<td>0.200</td>
<td>0.200</td>
<td></td>
<td>0.200</td>
<td>0.200</td>
<td>0.200</td>
<td>0.200</td>
</tr>
<tr>
<td>Shank length (cm)</td>
<td>mean</td>
<td>3.60 a</td>
<td>3.10 b</td>
<td></td>
<td>5.00 a</td>
<td>5.50 b</td>
<td>6.50</td>
<td>6.70</td>
</tr>
<tr>
<td></td>
<td>SE</td>
<td>0.100</td>
<td>0.100</td>
<td></td>
<td>0.100</td>
<td>0.100</td>
<td>0.100</td>
<td>0.100</td>
</tr>
<tr>
<td>Shank thickness (cm)</td>
<td>mean</td>
<td>0.700</td>
<td>0.700</td>
<td></td>
<td>1.00</td>
<td>1.00</td>
<td>1.10</td>
<td>1.10</td>
</tr>
<tr>
<td></td>
<td>SE</td>
<td>0.010</td>
<td>0.010</td>
<td></td>
<td>0.010</td>
<td>0.010</td>
<td>0.010</td>
<td>0.010</td>
</tr>
</tbody>
</table>

Trait mean values in rows denoted by different letters in birds of the same age differ significantly (P ≤ 0.05)
* – statistically significant differences between males and females within a genetic group (P ≤ 0.05)
guinea fowl from 1 to 8 weeks of age and throughout the study. However, in these periods pearl guinea fowl had lower (more efficient) feed conversion compared to white guinea fowl.

The mean body weight of birds selected for slaughter and carcass weight were lower in white guinea fowl. Dressing percentage was high and exceeded 74% in both varieties (Table 4). The analysed guinea fowl varieties did not differ significantly in carcass components except the percentage of skin with subcutaneous fat. In addition, the carcasses of white guinea fowl contained non-significantly (P > 0.05) more breast muscles, and less wings, leg muscles and remainders of the carcass, compared to pearl guinea fowl. In white guinea, significant differences were found between males and females in neck percentage in eviscerated carcass.

The coefficients of correlation (r) between body weight and dimensions of 12-week-old guinea fowl of white and pearl varieties, and the weight of eviscerated carcass with neck (Table 5) were positive except the correlation with breast bone length and shank thickness in white guinea fowl. In pearl guinea fowl, carcass weight was significantly correlated with body weight, body length, breast bone length and shank length, and in white guinea fowl with body weight and trunk length.

In the guinea fowl genotypes studied, body weight and dimensions were mostly negatively correlated with dressing percentage, whereas, trunk length was positively correlated with dressing percentage. In white variety dressing percentage was also positively correlated with breast-bone length and chest circumference, and in pearl variety with body length. Significant coefficients of correlation were only estimated between dressing percentage and trunk length in pearl guinea fowl.

The results of this study indicate that body weight can be a good indicator of the weight of breast and leg muscles in the carcasses of both guinea fowl varieties (significant correlations). In white guinea fowl, the weight of leg muscles is also significantly correlated with trunk, shank length and chest circumference. The coefficients of correlation between percentage of breast and leg muscles in carcass, and body weight and dimensions mostly had low and positive values. A negative and significant coefficient of correlation was found between the proportion of breast muscle and dressing percentage.
and leg muscles and shank thickness in pearl guinea fowl (Table 5).

**Discussion**

The mean body weight of day-old chicks of white variety was similar to the result obtained by SAINA et al. (2005) – 28.5 g. FANI et al. (2004) reported a similar body weight in day-old chicks of pearl variety (24.82 g). Day-old ash, pearl, white and black chicks investigated by AYORINDE et al. (1988) were characterized by lower body weight (20.98–23.26 g) compared to guinea fowl varieties evaluated in our study.

Various guinea fowl varieties studied by KOZACZYSKI (1998) were characterized by similar body weight at 4 weeks of age and lower body weight at 12 weeks compared to the pearl and white guinea fowl evaluated. FAJEMILEHIN (2010) and SERGEEV et al. (1988) found lower body weight in 4- and 8-week-old guinea fowl. Compared to our findings, lower guinea fowl body weights were reported by SAINA et al. (2005) and SERGEEV et al. (1988), and similar by MAZANOWSKI et al. (1982a) and MAREKO et al. (2006). Other studies (GALOR, 1985; AYORINDE, 1991) reported higher body weights (1208–1550 g) in 12-week-old guinea fowl compared to the birds analysed in our study. Much greater body weights were characteristics of French guinea fowl improved for meat traits (LETERRIER et al., 1999; BAEZA et}

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**Table 4. Dressing percentage and carcass composition at 12 weeks of age (n = 20)
Schlachtausbeute und Schlachtkörperzusammensetzung bei einem Alter von 12 Wochen (n = 20)**

<table>
<thead>
<tr>
<th>Trait</th>
<th>Variety – characteristics</th>
<th>White mean</th>
<th>White SE</th>
<th>Pearl mean</th>
<th>Pearl SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preslaughter body weight (g)</td>
<td></td>
<td>1054</td>
<td>12.5</td>
<td>1077</td>
<td>11.1</td>
</tr>
<tr>
<td>Carcass weight (g)</td>
<td></td>
<td>790</td>
<td>9.20</td>
<td>804</td>
<td>6.50</td>
</tr>
<tr>
<td>Dressing percentage (%)</td>
<td></td>
<td>75.0</td>
<td>0.300</td>
<td>74.7</td>
<td>0.300</td>
</tr>
<tr>
<td>Neck (%)</td>
<td></td>
<td>4.80*</td>
<td>0.100</td>
<td>4.90</td>
<td>0.100</td>
</tr>
<tr>
<td>Wings (%)</td>
<td></td>
<td>13.2</td>
<td>0.200</td>
<td>13.5</td>
<td>0.200</td>
</tr>
<tr>
<td>Breast muscles (%)</td>
<td></td>
<td>23.5</td>
<td>0.200</td>
<td>22.8</td>
<td>0.200</td>
</tr>
<tr>
<td>Leg muscles (%)</td>
<td></td>
<td>20.0</td>
<td>0.200</td>
<td>20.4</td>
<td>0.200</td>
</tr>
<tr>
<td>Skin with fat (%)</td>
<td></td>
<td>7.10 a</td>
<td>0.200</td>
<td>5.90 b</td>
<td>0.200</td>
</tr>
<tr>
<td>Remainders (%)</td>
<td></td>
<td>24.1</td>
<td>0.300</td>
<td>25.1</td>
<td>0.700</td>
</tr>
</tbody>
</table>

Trait mean values in rows denoted by different letters differ significantly (P ≤ 0.05) * – statistically significant differences between males and females within a genetic group (P ≤ 0.05)

**Table 5. Correlation coefficients (r) between carcass weight with neck, dressing percentage and carcass components, and body weight and dimensions at 12 weeks of age (n = 20)
Korrelationskoeffizienten (r) zwischen dem Schlachtkörpergewicht mit Hals, der Schlachtausbeute sowie der Schlachtkörperzusammensetzung und dem Körpergewicht sowie den Merkmalen der Körperdimensionen im Alter von 12 Wochen (n = 20)**

<table>
<thead>
<tr>
<th>Correlated traits</th>
<th>Variety</th>
<th>Carcass weight (g)</th>
<th>Dressing percentage (%)</th>
<th>Weight of breast muscles (g)</th>
<th>Weight of leg muscles (g)</th>
<th>Proportion of breast and leg muscles (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body weight (g)</td>
<td>White</td>
<td>0.950*</td>
<td>-0.260</td>
<td>0.780*</td>
<td>0.720*</td>
<td>0.080</td>
</tr>
<tr>
<td></td>
<td>Pearl</td>
<td>0.830*</td>
<td>-0.220</td>
<td>0.580*</td>
<td>0.570*</td>
<td>0.280</td>
</tr>
<tr>
<td>Body length (cm)</td>
<td>White</td>
<td>0.190</td>
<td>-0.050</td>
<td>-0.080</td>
<td>0.390</td>
<td>0.070</td>
</tr>
<tr>
<td></td>
<td>Pearl</td>
<td>0.510*</td>
<td>0.340</td>
<td>0.290</td>
<td>0.230</td>
<td>0.040</td>
</tr>
<tr>
<td>Trunk length (cm)</td>
<td>White</td>
<td>0.530*</td>
<td>0.220</td>
<td>0.410</td>
<td>0.690*</td>
<td>0.360</td>
</tr>
<tr>
<td></td>
<td>Pearl</td>
<td>0.330</td>
<td>0.640*</td>
<td>0.280</td>
<td>0.300</td>
<td>0.210</td>
</tr>
<tr>
<td>Breastbone length (cm)</td>
<td>White</td>
<td>-0.270</td>
<td>0.250</td>
<td>-0.410</td>
<td>-0.020</td>
<td>0.020</td>
</tr>
<tr>
<td></td>
<td>Pearl</td>
<td>0.520*</td>
<td>-0.150</td>
<td>0.380</td>
<td>0.470</td>
<td>0.270</td>
</tr>
<tr>
<td>Chest circumference (cm)</td>
<td>White</td>
<td>0.380</td>
<td>0.250</td>
<td>0.120</td>
<td>0.510*</td>
<td>0.110</td>
</tr>
<tr>
<td></td>
<td>Pearl</td>
<td>0.260</td>
<td>-0.490</td>
<td>0.040</td>
<td>-0.120</td>
<td>-0.230</td>
</tr>
<tr>
<td>Shank length (cm)</td>
<td>White</td>
<td>0.450</td>
<td>-0.220</td>
<td>0.180</td>
<td>0.590*</td>
<td>0.130</td>
</tr>
<tr>
<td></td>
<td>Pearl</td>
<td>0.540*</td>
<td>-0.340</td>
<td>0.400</td>
<td>0.380</td>
<td>0.180</td>
</tr>
<tr>
<td>Shank thickness (cm)</td>
<td>White</td>
<td>-0.250</td>
<td>-0.110</td>
<td>-0.110</td>
<td>-0.280</td>
<td>-0.040</td>
</tr>
<tr>
<td></td>
<td>Pearl</td>
<td>0.060</td>
<td>-0.200</td>
<td>-0.360</td>
<td>-0.270</td>
<td>-0.540*</td>
</tr>
</tbody>
</table>

* – coefficients of correlation between body weight and dimensions and postmortem traits statistically significant (P ≤ 0.05)
The body dimensions of the analysed guinea fowl varieties increased to 12 weeks of age, which may suggest that these birds did not cease growing. Nsoso et al. (2006), who analysed growth traits in guinea fowl raised on different types of bedding (concrete or earth floor) found significant increases in body weight, body length, neck length, metatarsal length and hip width from 5 to 12 weeks of age. The analysed birds had longer trunk, breast-bone and shanks and greater chest circumference compared to 13-week-old guinea fowl of pearl variety investigated by Kasperska et al. (2011).

In earlier studies, depending on the evaluation date, highest daily gains were observed between weeks 2 and 4 (Saina et al., 2005), weeks 5 and 8 (Oguntona, 1983) or 12 and 16 weeks of age (Kozacynski, 1998). Fajemilehin (2010) observed the highest weight gains in black guinea fowl from 10 to 12 weeks of growth. Differences between guinea fowl varieties in the highest daily gains were also observed in our study.

Feeding the guinea fowl with diets relatively low in protein per kg feed could contribute to lower weight gains and lower feed conversion than in other experiments with this poultry species. Feed conversion to 12 weeks of age in the analysed pearl and white guinea fowl was less efficient than reported by Mazanowski et al. (1982b) and Fratczak et al. (2002), and especially Chiéricato et al. (2001). Jamentot (1994) reports that feed conversion in guinea fowl was reduced from 3.5 to 2.9 due to breeding work.

The analysed varieties of guinea fowl were characterized by high dressing percentage. The percentage of eviscerated carcass with neck to preslaughter weight at 12 weeks of age was lower than in birds of the same age investigated by Fratczak et al. (2002). In a study by Mazanowski et al. (1982a), 12-week-old guinea fowl were characterized by lower dressing percentage (67.2–68.7%) compared to guinea fowl varieties analysed in our study. Ayorinde (1989) found dressing percentage to depend on guinea fowl variety and age. Dressing percentage in 4 guinea fowl varieties (Ash, Black, Pearl and White) aged 20 weeks averaged 70.7%, which is less than in guinea fowl evaluated at 12 weeks of age. Kozacynski et al. (2011) also found lower dressing percentage (males 70.2, females 70.9%) in 13-week-old pearl guinea fowl.

Dissection analysis showed that the compared guinea fowl varieties differed significantly only in the content of skin with subcutaneous fat. Its content in both guinea fowl varieties was lower than in the carcasses of 12-week-old pearl guinea fowl investigated by Mazanowski et al. (1982a). The proportion of breast muscles in eviscerated carcasses of the analysed guinea fowl was higher than that (18.5–19.8%) found by Fratczak et al. (2002) despite their lower dressing percentage. Mazanowski et al. (1982a) reported a similar content of breast muscles (22.8–24.0%) in guinea fowl carcasses as in our study. Leg muscle content in the analysed guinea fowl varieties was lower than in the carcasses of 12-week-old guinea fowl (20.8%) studied by Saina (2005). Meanwhile, 14-week-old guinea fowl evaluated by Pudyasz et al. (2005) had 17.92% of leg muscles, which is less than in the varieties analysed in our study.

The coefficients of correlation calculated for the analysed guinea fowl between body weight, body dimensions and some postmortem traits confirmed the results of an earlier study with ducks (Bernacki et al., 2006), as evidenced by significant correlations between body weight, and weight of breast and leg muscles, and also significant correlations between carcass body weight and breast length, trunk length and chest circumference. Meanwhile, Nahashon et al. (2005) found significant correlations between carcass weight in 8-week-old guinea fowl and weight of breast, thigh and lower thigh, as well as weight of neck, wings, abdominal fat, liver and heart.

Conclusions

Compared to Pearl (Grey) guinea fowl, White guinea fowl were characterized by significantly more rapid rate of growth in the initial period of rearing (up to 4 weeks of age) and by significantly longer trunk and breast-bone but lower massiveness and compactness at the end of the study. The better feed conversion and the higher body weight of pearl compared to white guinea fowl may indicate that they are more suitable for broiler production, and the significantly greater carcass fatness in white guinea fowl suggests that they are more suitable for stewing. Body weight is the best in vivo indicator of carcass weight and the weight of breast and leg muscles, followed by trunk length and chest circumference.

Summary

The study was conducted with white and pearl varieties of guinea fowl. Birds were confined in an environmentally controlled facility and fed commercial diets ad libitum. Day-old chicks were weighed, and at the end of 4, 8 and 12 weeks of age birds were measured for body weight and dimensions. Feed consumption was recorded throughout the study. At 12 weeks of age, 20 guinea fowl of each variety were selected for dissection.

Compared to pearl guinea fowl, white guinea fowl were characterized by significantly higher body weight and body dimensions at 4 weeks of age except chest circumference and shank thickness; by significantly shorter body and shanks and significantly smaller chest circumference at 8 weeks of age; and by significantly longer trunk and breast-bone at 12 weeks of growth. The analysed guinea fowl varieties differed significantly in the indices of massiveness (weeks 8 and 12) and compactness (weeks 4 and 12). The compared guinea fowl groups did not differ significantly in carcass components except the percentage of skin with subcutaneous fat. In both guinea fowl varieties, body weight is the best in vivo indicator of carcass weight and the weight of breast and leg muscles – medium or high correlations – (white variety) or shank thickness (pearl guinea fowl) is the best in vivo indicator of percentage of breast and leg muscles in carcass.

Key words

Guinea fowl, body dimensions, body composition, growth performance

Zusammenfassung

Untersuchung von Fleischqualitätsmerkmalen bei zwei Perlhuhnunterarten

Die Untersuchung wurde an grauen und an perlfarbenen Perlhühnern durchgeführt. Hierzu wurden die Tiere unter


Stichworte

Perlhuhn, Körperdimensionen, Körperzusammensetzung, Wachstum

References


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