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Summary

The birds in the treatment group received a feed supplemented with charcoal at a dose of 3 kg/ton (0,3%). The use charcoal had a beneficial effect on performance. After 49 days of rearing chicken given feeds with charcoal were 3,5% and had a 2% heavier better feed conversion ratio than the control group.

Key words: charcoal-supplemented, chickens, performance

QUALITY OF MEAT FROM MUSCOVY DUCKS AS DEPENDENT ON THEIR AGE

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In many developed countries a diet based on low-fat animal products is recommended as part of preventive treatment of circulatory diseases (4). Meat from Muscovy ducks seems to meet these requirements (1, 3, 6). The aim of the present studies was to evaluate the chemical. physicochemical and sensory properties of meat from Muscovy ducks reared to 9 or 10 weeks – females. and 11 or 12 weeks - males.

Material and Methods

The experimental material were 200 Muscovy ducks (sex: 1:1), reared according to the technology applied in Poland. When the rearing period was over. 20 birds were selected at random from each age group. 40 ♂ and 40 ♀ altogether. Breast muscles (musculus pectorolis superficialis and profundus) were separated from chilled carcasses, to determine by conventional methods their chemical composition (crude protein, crude fat, dry matter, ash), physicochemical properties (pH – with a pH-meter, colour lightness – with a spectrocolorimeter, water-holding capacity – by the Grau and Hamm method) and sensory properties (aroma. juiciness. tenderness, palatability – according to the methodology given by Baryłko-Pikielna et al., (2). A statistical analysis included the determination of arithmetic means ($\bar{x}$), coefficients of variation (v) and significance of differences between the means for age in sex groups.

Results

Breast muscles of older birds. both males and females. were characterized by a significantly higher content of protein. dry matter and ash (Table 1). The fat content of the muscles examined was at a similar level (from ca. 0.8%) in

drakes. As regards ducks. breast muscles of 10-week-old ones contained significantly more fat ($\bar{x}$ = 0.9%) than those of 9-week-old ones ($\bar{x}$ = 0.6%). This confirms a commonly known tendency that Muscovy ducks start to deposit fat earlier than drakes.

The scores for the sensory properties of breast muscles were high in all age groups. and varied from 4.2 to 4.7 (Table 2). This indicates that meat from Muscovy ducks is characterized by the desired aroma and palatability. as well as good juiciness and tenderness. similarly as meat from mulards (5).

Table 1. Chemical composition and physicochemical properties of duck muscles

Specification	Statistics	Sex and age of ducks			
		♀		♂	
		9	10	11	12
Protein (%)	$\bar{x}$	18.6	19.3**	18.6	19.6**
	v	3.47	2.05	3.23	3.36
Fat (%)	$\bar{x}$	0.6	0.9**	0.7	0.8
	v	37.71	35.75	27.85	32.49
Dry matter %	$\bar{x}$	22.1	23.1**	21.9	22.9**
	v	2.07	1.93	2.26	2.74
Ash (%)	$\bar{x}$	1.2	1.3**	1.2	1.3**
	v	2.82	2.36	3.26	5.18
Ph	$\bar{x}$	5.8	5.7	5.7	5.8
	v	1.20	0.93	1.04	1.18
Colour lightness (%)	$\bar{x}$	15.7**	11.7	14.9	15.4
	v	19.83	13.61	12.49	19.88
Water-holding capacity (cm^2)	$\bar{x}$	9.6**	9.0	8.6**	7.2
	v	11.92	13.63	19.19	14.02

** Significant differences at ≤ 0.01

Table 2. Sensory properties (points) of the muscles analyzed

Specification	Statistics	Sex and age of ducks			
		♀		♂	
		9	10	11	12
Aroma - intensity	$\bar{x}$	4.7	4.6	4.4	4.6
	v	7.97	9.30	9.11	9.40
- desirability	$\bar{x}$	4.7	4.6	4.4	4.6
	v	8.02	9.20	9.58	9.72
Palatability – intensity	$\bar{x}$	4.3	4.5	4.2	4.3
	v	8.77	11.22	13.01	12.85
- desirability	$\bar{x}$	4.4	4.5	4.3	4.4
	v	9.18	13.00	11.42	12.40
Tenderness	$\bar{x}$	4.2	4.6**	4.2	4.3
	v	10.45	10.93	15.10	12.85
Juiciness	$\bar{x}$	4.4	4.5	4.4	4.4
	v	9.47	13.00	12.23	11.42

** Significant differences at $p \leq 0.01$

Conclusions

Meat from older Muscove ducks (♀ - 10 weeks, ♂ - 12 weeks), compared with meat from younger ones, is usually characterized not only by desirable chemical composition, but also by better sensory properties.

Summary

Quality of Meat from Muscovy Ducks as Dependent on Their Age

Kazimierz Wawro, Elżbieta Wilkiewicz-Wawro

The experimental material were Muscovy ducks, reared to the age of 9 or 10 weeks (females), and 11 or 12 weeks (males). Breast muscles were taken for analysis from 20 birds selected at random from each age group, 40 ♂ and 40 ♀ altogether. The analysis included: chemical composition, physicochemical properties and sensory properties of the muscles.

It was found that meat from older Muscove ducks (♀ - 10 weeks, ♂ - 12 weeks), compared with meat from younger ones, is usually characterized not only by desirable chemical composition, but also by better sensory properties.

Key words: Muscovy ducks. meat. physicochemical and sensory properties.

Резюме

Качество мяса мускусных уток в зависимости от их возроста

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Проведено исследования мускусных уток выращиваемых до возроста 9 или 10 недель у самок и 11 или 12 у самцов. В анализе учитывали мышцы груди от случайно отобранных 20 птиц в данном возросте, вместе 40♂ и 40♀. Исследовано химический состав, физикохимические и сенсорные свойства отобранных мышц.

Констатировали, что мясо старших мускусных уток (♂ - 10 недель, ♀- 12 недель) в сравнении с младшими отличается вообще не только желательным химическим составом но даже лучшими сенсорными свойствами.

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7.

MILK YIELD OF PRIMIPAROUS COWS AS DEPENDENT UPON THE COUNTRY OF ORIGIN OF SIRES

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Milk yield of cows is related not only to environmental conditions, but also to genetic factors, including breed and – in the case of imports – the country of origin of sires (Sablik et al. 2001, Czaplicka et al. 2001, Wielgosz-Groth and Groth 2002).

The objective of the present study was to determine the effects of the country of origin of sires on the milk productivity of their daughters-primiparas.

Material and Methods

43779 305-day lactation of primiparaous Black-and-White cows, used in the years 1997 – 2002 in north eastern Poland, were analyzed in the study. The cows were divided into groups taking into account the country of origin of their sires, i.e. Poland, France, the Netherlands, Canada, Germany and the USA. The yields of fat-corrected milk (FCM), fat and protein, milk fat content, milk protein content, and protein/fat ratio were determined.

The numerical material was analyzed statistically by a one-factor analysis of variance in a non-orthogonal design. The significance of differences between means of the parameters examined was determined by the Duncan test. Calculations were performed in the computer program STATISTICA.

Results

The cows by Dutch sires showed the highest values of milk yield parameters (Table 1). They were characterized by significantly ($P \leq 0.01$) higher yields of milk (6340.6 kg), fat (254.9 kg) and protein (208.9 kg), milk protein content (3.32%), and the best protein to fat ratio (0.828), as compared with the other groups. However, milk from these cows contained significantly ($P \leq 0.01$) less fat (o 0.09%), in comparison with milk from the daughters of German bulls, for which the highest value was achieved (4.17%). Similarly as in experiments carried out by Sitkowska and Mroczkowski (2004), the highest total yields of milk, protein, fat and FCM were recorded in the cows descended from Dutch