QUALITATIVE CHARACTERISTICS OF TURKEY CCARCASSES IN DEPENDENCE OF FATTENING PERIOD

Mitrovic S.[1], Snezana Bogosavljevic-Boskovic[2], Gajic Z.[1]
[1)] Faculty of Agriculture, Nemanjina 6, 11080 Beograd-Zemun, Yugoslavia
[2)] Faculty of Agronomy, Cara Dusana 34, 32000 Cacak, Yugoslavia

Background

Due to its paramount biological and nutritive significance, turkey meat is considered a highly ranked foodstuff. It is well-known that this meat contains a high content of proteins and a small one of fats, hence its markedly low energetic value.

The results obtained as yet point to the conclusion that the quality of turkey meat depends on a range of different factors. In addition to genetic basis, some of the researchers, such as *Moran et al.*, (1970), *Perenyi* (1980), *Peric et al.*, (1992) found quantitative and qualitative turkey meat characteristics to be closely linked with sex and growth of turkeys at the time of slaughter. In this sense, Ristic (1986) emphasized that fattening of the female turkeys was optimal until the 14th week of age, while that of the male ones could be performed until the 22nd week of age in order to achieve larger mass of the dressed carcass as well as that of the most important basic part of the breasts.

Objectives

The objective of the paper was, therefore, to study the effects of the fattening length of time in the male turkeys on the individual parameters of the carcass quality of the proveniance Nicholas.

Methods

The total of 60 young male fattened turkeys of the proveniance Nicholas were used for the research. All the turkeys were laid on the same day and fattened equally under the same conditions up to being transferred for slaughter. The trial turkeys were selected from the flock randomly and directed for slaughetr in five trial phases (each consisting of 12 head). The first slaughter and analyzing of carcass quality were performed after 14 weeks had elapsed from fattening. The other trial groups were slaughtered and analyzed after every two weeks so that the last trial group was slaughtered and analyzed after twenty-two weeks had elapsed from the fattening.

After the slaughter and dressing, the carcasses were cooled up to the temperature of around 4oC deep in the breasts lasting for 24 hours and cut into the basic parts, following the method specified by Regulations. After cutting and evidencing the data about the mass of the single basic parts, dissection of the breasts on the muscle tissue, bones, skin and connective tissue, was performed.

The data obtained were worked out, using the appropriate mathematical-statistical methods.

Results and Discussion

The data about turkey mass before slaughter, that of the dressed carcasses and slaughter yield are presented in tab.1.

From the table 1, one can see that extended fattening along with an increase in mass of the dressed and cooled carcasses elevated the slaughter yield of the cooled carcasses. Thus, with fattening extended from 14th to 22nd week, the slaughter yield increased by 5.99%. This difference was corroborated statistically at the level $P \leq 0,05$.

From the tab.2., one can see the data about the share of the individual basic parts in the mass of the dressed and cooled turkey carcasses.

From the data in the table 2., on can see that with growing older at slaughter, the share of drumsticks and thighs decreased, whereas that of breasts increased. Thus, at slaughter in the 22nd week of age, the share of breasts was greater by 5.69% compared to that of the basic part evidenced in turkey carcasses after 14 weeks of the fattening. The analysis of the data about the share of the remaining basic parts suggests an absence of the regularly expressed tendency on the changes in dependence of fattening duration.

The research results are in full agreement with those of *Moran et al.*, (1984), *Ristic* (1996) and *Peric et al.*, (1992).

The data on the share of the individual breast tissues of turkeys differing in age, are presented in the tab. 3.

From the tab.3., one can see that the share of the muscle tissue in the breast mass increased by around 1.0% with an increment in age from 14th to 18th week, wherupon the muscle share decreased with fattening prolonged up to the 22nd week of age. The greatest share of bones (13.36%) was evidenced in the breast mass at the slaughter at the age of 14 weeks and the lowest one (7.39%) at that of 22 weeks. This difference was highly statistically significant ($P \leq 0,01$). The skin share in the breast mass increased with extended time of fattening. Thus, the skin share in the breast mass of the turkeys slaughtered at the age of 22 weeks appeared to be significantly higher ($P \leq 0,05$) compared to that recorded with slaugher at the age of 14 weeks. In addition, the research results also pointed to the functionally and statistically significant dependence between the connective tissue share increase in the breast mass and age function.

Conclusion

Based upon the results on the individual parameters relating to the quality of turkey carcasses of the proveniance Nicholas in dependence of the age at slaughter, the following may be concluded:

- Fattening extended from 14th to 22nd week of age led to a significant increase in the mass and slaughter yield of the dressed carcasses;
- Compared to the mass of the dressed carcass, the share of breasts increased with increase in fattening time, whereas that of drumsticks and thighs decreased, and
- The share of muscle tissue in the breast mass has shown a rising trend with growing age at slaughter from the 14th to 18th week. Further extension of the fattening up to the 22nd week of age, however, displayed a decreased share of the muscle tissue in the breast mass.

Pertinent literature

1. **Moran, E., Orr, H., Larmond, E.** (1970): Poultry sci. 49, 475-493;
2. **Moran, E., Poste, L., Ferket, P., Agar, V.** (1984): Poultry sci. 63, 1778-1792;
3. **Perenyi, M.** (1980): Boromfitenyesztes es feldolgozas, 4, 161-166;
4. **Peric, V., Mitrovic, S., Zivkovic, D., Vitorovic, D.** (1992): Tehnologija mesa, 5, 192-197;
5. **Ristic, M.** (1986): XXXVI Savetovanje jugoslovenske industrije mesa, Donji Milanovac, 58-71.

Table 1. The Yield of the Dressed Carcasses of Turkeys of Various Age

Age		Turkey mass before slaughter (g)	Dressed cooled carcass weight (g)	Slaughter yield of the cooled carcass (%)
14th week	$\bar{x}$	5833.33	4330.83	72.75
	Cv	9.99	10.61	2.29
16th week	$\bar{x}$	7483.33	5548.18	74.13
	Cv	8.60	9.04	1.33
18th week	$\bar{x}$	9858.33	7409.17	75.14
	Cv	5.29	7.76	1.33
20th week	$\bar{x}$	11383.33	8840.42	77.70
	Cv	7.83	7.19	1.38
22nd week	$\bar{x}$	13825.00	10886.67	78.74
	Cv	6.71	7.12	1.69

Table 2. The Share of the Basic Parts in Carcasses of the Turkeys Varying in Age (%)

Age		Drumsticks	Thighs	Breasts	Small drumstikcs	Wings	Back	Pelvis
14th week	$\bar{x}$	15.12	16.64	32.93	7.22	7.19	10.41	10.01
	Cv	4.76	2.70	3.01	6.51	8.62	4.13	4.89
16th week	$\bar{x}$	15.00	16.41	31.00	7.91	7.15	11.53	10.66
	Cv	3.93	4.33	4.61	7.46	4.47	7.63	6.28
18th week	$\bar{x}$	14.09	16.20	34.07	6.66	6.30	10.92	11.26
	Cv	5.54	5.25	5.34	3.30	4.60	9.16	5.06
20th week	$\bar{x}$	13.35	16.15	36.28	6.10	6.06	10.70	10.29
	Cv	4.94	2.47	3.20	6.88	4.78	9.35	9.52
22nd week	$\bar{x}$	12.22	15.65	38.73	5.72	5.69	9.46	11.78
	Cv	5.97	4.73	3.92	5.94	2.81	13.64	5.01

Tab.3. The Share of the Individual Tissues in the Breast Mass of the Turkeys Varying in Age (%)

Age		Muscles	Bones	Skin	Connective tissue
14th week	$\bar{x}$	82.08	13.36	4.06	0.25
	Cv	1.05	5.31	23.89	20.00
16th week	$\bar{x}$	82.87	11.98	4.29	0.51
	Cv	1.65	8.93	20.28	15.69
18th week	$\bar{x}$	83.03	9.55	6.03	0.95
	Cv	1.10	11.10	9.95	51.58
20th week	$\bar{x}$	81.18	8.47	7.01	2.87
	Cv	2.60	11.33	20.97	14.98
22nd week	$\bar{x}$	80.49	7.93	8.15	2.83
	Cv	2.05	6.56	18.16	18.70