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Effects of caponization on growth performance and carcass composition of broilers and male-layers

G. K. Symeon[1], F. Mantis[2], I. Bizelis[1], A. Kominakis[1] and E. Rogdakis[1]

[1]Department of Animal Breeding and Husbandry, Faculty of Animal Production, Agricultural University of Athens e-mail: symeon@aua.gr
[2]Department of Food Technology, Lab. of Meat & Meat Products Technology and Quality Control, Technological Educational Institution of Athens

Introduction

The practice of caponizing is very old with records indicating that it was performed more than 2.000 years ago. In recent times, there has been an increase in the consumer's demand for more variety and quality of poultry meat products, which has led to a reappraisal of the use of traditional practices, such as caponization. The aim of the present study was to evaluate the effect of caponization on growth performance and carcass.

Materials and Methods

Three experiments were conducted as shown on table 1. For the evaluation of growth performance live weights and feed intake were recorded weekly. At slaughter, cold carcass weight and carcass yield were recorded along with edible viscera weights, carcass parts weights and tissue weights (muscles, bones and skin plus visible fat) of the thigh, drumstick and breast. Data were analyzed using GLM procedures fitting the treatment as the fixed factor.

Table 1: Design of the experiments

Exp.	Hybrid (type)	Duration (wk)	Slaughters (wk)
1	Redbro (medium)	18	6, 9, 12, 15, 18
2	Redbro (medium)	24	24
3	Lohmann (Slow)	34	26, 30, 34

Caponization: Redbro at 3 wks, Lohmann at 6 wks

Results and Discussion

Caponization did not affect final live weight (fig. 1) and feed intake in both hybrids. With regard to internal organs' weights, caponization decreased heart weight in both hybrids while liver weight was increased in Redbro capons only. With respect to carcass parts' weights, caponization did not affect wing and the rest of the carcass weight while a decrease of foot muscle (thigh and drumstick) weight was recorded along with a tendency for increased breast muscle weight. The most prominent effect of caponization was the increase of fat deposition both in terms of abdominal fat and of skin plus any visible fat of the thigh and the breast (tab. 2 and 3). No difference in drumstick skin-fat weight between intact males and capons was recorded in both hybrids. The proportion of carcass fat was increased by the caponization. These differences were dependent on the hybrid and the age at slaughter. They were much more established on the male-layers compared to broilers while they were more pronounced with increasing age.

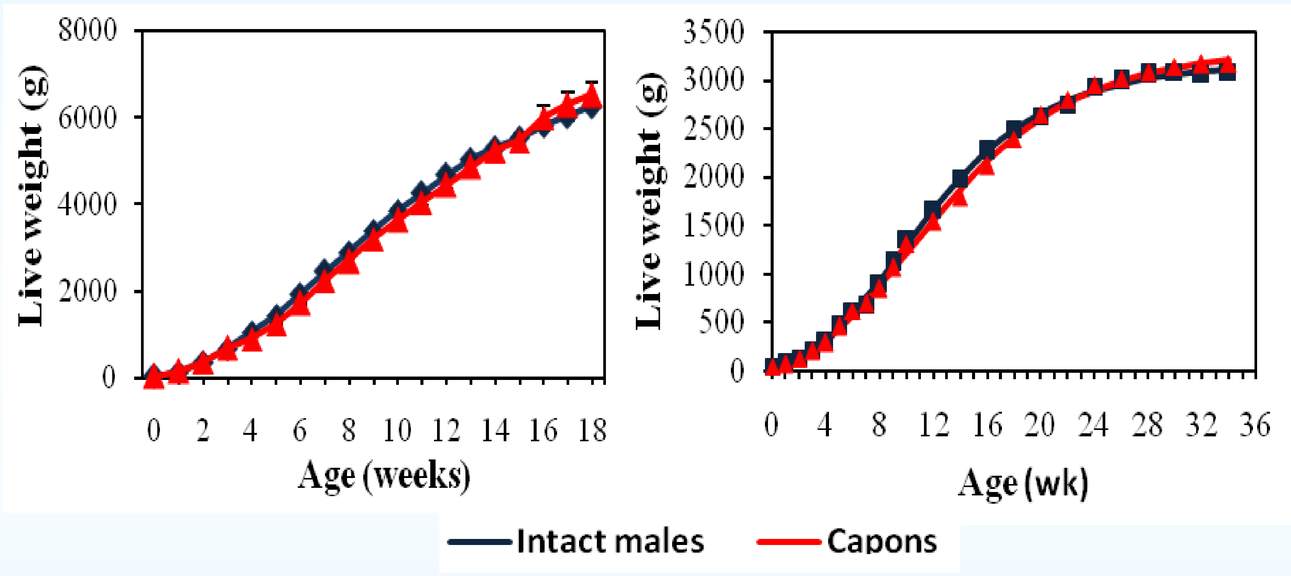

Figure 1: Live weight means of a) Redbro (exp 1) and b) Lohmann (exp 3) intact males and capons

Table 2: Carcass parts means of intact males and capons.

	Redbro 24 wks (exp 2)	
Carcass parts weight (g)	**Intact males**	**Capons**
Breast	1155 ± 29	1235 ± 39
Thigh	310 ± 9	302 ± 12
Drumstick	290^{a} ± 6	250^{b} ± 8
Wing	201 ± 3	198 ± 5
Rest	1091 ± 30	1108 ± 41
Fat pad	119 ± 23	191 ± 29
Thigh meat	234 ± 7	212 ± 9
Thigh Skin-fat	34^{b} ± 4	52^{a} ± 5
Drumstick meat	195^{a} ± 5	168^{b} ± 7
Drumstick skin-fat	36 ± 2	35 ± 2
Breast meat	866 ± 23	921 ± 31
Breast skin-fat	138^{b} ± 14	191^{a} ± 18
Carcass fat (%)	15.0^{b} ± 1.1	19.0^{a} ± 1.4

^{a,b} Means in a row with different superscripts differ significantly (P<0.05)

Table 3: Carcass parts means of intact males and capons.

	Lohmann 34 wks (exp 3)	
Carcass parts weight (g)	**Intact males**	**Capons**
Breast	493^{b} ± 12	566^{a} ± 12
Thigh	199 ± 4	183 ± 4
Drumstick	173^{a} ± 4	148^{b} ± 4
Wing	130 ± 2	132 ± 2
Rest	600 ± 11	640 ± 11
Fat pad	2.9^{b} ± 8	119.2^{a} ± 8
Thigh meat	158^{a} ± 3	124^{b} ± 3
Thigh Skin-fat	14^{b} ± 2	31^{a} ± 2
Drumstick meat	128^{a} ± 3	105^{b} ± 3
Drumstick skin-fat	11 ± 1	10 ± 1
Breast meat	379 ± 8	408 ± 8
Breast skin-fat	38^{b} ± 5	88^{a} ± 5
Carcass fat (%)	8.9^{b} ± 0.8	19.6^{a} ± 0.8

^{a,b} Means in a row with different superscripts differ significantly (P<0.05)

Conclusion

Caponization, without harming production efficiency, increased fat deposition and decreased foot muscle weight. These effects were much more evident on the slow growing hybrid. Male layers adjusted better to this type of farming due to their smaller live weight, which resulted in practically no leg problems and low mortality rates. Capons expressed a calm nature and they could rather easily be reared in high densities. Therefore, caponization could be practiced for the production of "special quality" chicken meat, using slow-growing hybrids, especially male-layers