EFFECTS OF CASTRATION ON FEATHER WEIGHT IN DOMESTIC FOWL*

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Systematic studies on the effects of castration in the cock *Gallus domesticus* are not numerous, although orchotomy has been practiced for some time. To most casual observers there seems to be no indication that castration has an appreciable effect upon the plumage of the capon. According to Domm (1939, p. 270), Sellheim in 1898, Goodale in 1913 and 1916, Zawadowsky in 1922, Finlay in 1925, and Benoit in 1929 reported a greater feather length for the capon, while Horowitz in 1931 and 1934 showed the feather weight of capons of the Polish Greenleg, which is a relatively small-bodied bird, to be 6.13 to 7.42 percent of body weight while the feather weight for cocks of the same breed was only 4.43 to 5.72 percent of body weight. Unless capon feathers are narrower, these investigations indicate that there is a difference in feather weight of cockerels and capons. Mitchell, Card and Hamilton (1926) found feather weight on growing White Plymouth Rock cockerels and capons to vary from 3.79 to 7.90 percent and 6.25 to 8.28 percent of the live body weight respectively.

The following method was devised to secure a comparable measure of feather weight in capons and cockerels. At 8 weeks of age, 50 Barred Plymouth Rock cockerels and 50 capons of the same variety were separately yarded under similar methods of feeding and management. Upon reaching 24 weeks of age, on August 1, and thereafter on the first of each of the 5 following months, 10 capons and 10 cockerels were randomly selected for the determination of feather weight. These birds were cooped without feed for 18 hours, then weighed, killed, and plucked.

At the 24 and 29 weeks periods, the feather weight was obtained by dry picking all of the feathers and weighing them in a cotton bag. For the remaining 3 periods the feather weight was obtained by subtracting the plucked body weight from that secured prior to plucking, which permitted the use of the slack scald method of plucking.

The following table lists the number of cockerels and capons observed, their mean live body weight, and mean feather weight at each of the respective killing ages.

Date 1940	Age in weeks	Kind	Number of individuals	Mean live body weight lbs.	Mean feather weight lbs.
		Cockerel	10	5.14	0.28
Aug. 1	24	Capon	10	5.40	0.36
		Cockerel	10	5.49	0.33
Sept. 3	29	Capon	10	5.64	0.43
		Cockerel	10	6.73	0.36
Oct. 2	33	Capon	10	6.89	0.52
		Cockerel	9	6.82	0.45
Oct. 30	37	Capon	9	7.11	0.51
		Cockerel	9	7.12	0.45
Nov. 20	40	Capon	9	7.24	0.55

The body weight of both cockerels and capons continued to increase at a highly significant rate throughout the period of observation. Differences

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between body weights of cocks and capons at any one age were statistically nonsignificant.

Likewise the feather weight showed a highly significant increase with age. Therefore, feather weight increased with body weight. By 24 weeks there was a highly significant difference in feather weight between capons and cocks. Thereafter, the feathers of capons always weighed more in each successive period. Castration, or removal of the gonads, caused an increase in the amount of feathers prior to 24 weeks of age. The capons reached their maximum feather weight between the 29th and 33rd weeks, whereas the cockerels reached their maximum feather weight between the 33rd and 37th weeks. At 40 weeks of age the mean feather weight represented 7.60 percent of body weight for the capons and 6.30 percent of body weight for the cockerels. These percentage figures are higher than those reported by Horowitz on his (probably mature) capons of a smaller breed.

LITERATURE CITED

1. Domm, L. V., 1939. Sex and internal secretions. Edited by Allen. Second Edition. Baltimore: Williams and Wilkins Company.
2. Mitchell, H. H., L. E. Card, and T. S. Hamilton, 1926. The growth of White Plymouth Rock chickens. Ill. Agr. Exp. Sta. Bull. 278: 88-90.