



EFFECT OF SEX ON SERUM PHOSPHORUS LEVEL, BONE ASH AND BODY WEIGHT OF THE CHICK

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ABSTRACT

Sixty (one day old) meat-hybrid chicks from a commercial hatchery were used in this investigation were randomly assigned into groups of 30 male and 30 female chicks. The experiment was conducted to determine the effects of sex on serum phosphorus level, bone ash percent and body weight of the chick at 2,4 and 6 weeks of age. Results of the experiment indicate a significant interaction of bone ash percent X sex and body weights X sex. No significant interaction of serum phosphorus level X sex.

KEYWORDS: Chick, Sex, Serum phosphorus, Bone ash, Body weight.

INTRODUCTION

Within the past years much attention has directed toward a re-evaluation of the nutritive minerals requirement of poultry (combined sexes). The phosphorus requirement has been based on weight gain, feed efficiency and bone ash data, pullets achieved maximum bone mineralization when (0.55% available phosphorus) was fed to 3 week old pullets^[1]. The national research council (1984) recommendation for the pullets is 0.6% available phosphorus^[2]. A review of the literature by^[3] indicates that the pullets requirement for total phosphorus is no greater than 0.45% for maximum growth. It has been established that females exhibited a higher percent bone ash than did males fed identical diets^[4 & 5]. Furthermore,^[6] observed that mineral requirements of females are less than that of males. To gain additional information about inter-relationship of sex, the present paper is concerned with the effect of sex on serum phosphorus level, bone ash percent and body weight of the chick.

MATERIALS & METHODS

Sixty day-old meat hybrid chicks from a commercial hatchery were randomly assigned into groups of 30 male and 30 female chicks. The diet 20% protein, 3.5% fat, 1.1% Ca, 0.75% P and tap water were given libitum. At 2, 4, and 6 weeks of age the chicks 10 males and 10 females were sacrificed, blood samples were collected

and serum was separated by centrifugations (10 minutes) at 5000 r/min. and used for estimation of phosphorus, test method for the determination of inorganic phosphorus used^[7]. The right tibia was removed and ash was determined by Association of official agricultural chemists^[8] method, ash percent was calculated. The data were subjected to analysis of variance as outlined by Snedecor, G. W. and Gohron, W. G.^[9].

RESULTS & DISCUSSION

The results of this study are presented in (Table, 1) a significant interaction of bone ash percent X sex and body weights X sex. Males had greater body weights than did females, but in general the females had a higher percent bone ash. This agrees closely with the work reported by^[5 & 6]. Females generally had a higher percent bone ash than did males indicate the mineral requirements of females are less than that of males, Thomas, W. S^[4] suggest that the total phosphorus requirements of female and male Turkeys is 0.7-0.8% and 0.75-0.85%, respectively. On the other hand, the present data show that females had a higher but not significant serum phosphorus level than males. The earlier report of Sturkie, P. D.^[10] indicates that in organic phosphorus in the plasma of adult birds female and male is 8 and 6 mg/100 ml, respectively.

TABLE 1: Effect of sex on serum phosphorus level, bone ash and body weight of the chick.

Age (Weeks)	Plasma phosphorus level mg/100ml		Tibia ash %		Body weight	
	Female	Male	Female	Male	Female	Male
2	4.84 ±0.766	4.120 ±0.296	39.517 ±4.846	35.634 ±5.959	209.1 ±44.812	255.778 ±25.767
4	4.634 ±0.998	4.488 ±0.693	40.683 ±3.194	35.033 ±3.278	525.222 ±57.124	635.7 ±35.871
6	4.784 ±0.366	4.84 ±0.766	39.377 ±3.463	34.874 ±1.500	953.333 ±228.633	1074.545 ±137.139

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