

GROWTH OF CHICKS FED ON POULTRY MANURE UNDER SUDAN CONDITIONS

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SAMMARY

Varying levels of sun dried poultry manure (SDPM) has been tested as a replacement for a controlled poultry diet and fed to two breeds of laying birds at 5 weeks of age for 13 weeks. Birds of the two breeds fed on diets containing 10, 15 and 20% SDPM grew significantly slower compared with those fed on the control diet. The growth rates of birds of the two breeds were inversely related to the manure content of the diet. The total food intake of those fed SDPM were substantially higher than the control. Conversely, the total ME intake of those fed SDPM was substantially lower than the control.

INTRODUCTION

The utilization of chicken manure by the domestic fowl has been studied extensively in several reports (Wehunt et al, 1960. Warden and Schaible, 1961, Bez- ares and Avilla, 1980, Rossing et al., 1980 and Prasad and Salagopan, 1982). However, the results of these reports show a wide range of variation. In the available literature there does not appear to be any record of investigating the utilization of poultry manure in the rearing of chickens in the Sudan. Therefore the present work endeavours to make such a contribution. Although poultry farming in the Sudan has entered a new era of modernisation, the production did not keep pace with the explosive rise in the demand of poultry products. The recent drought which hit the area and the occurrence of low rainfall had a direct influence on the high cost of

cereal grains and protein concentrate which together constitute over 60% of poultry diets.

MATERIALS AND METHODS

Four diets were compounded (Table 1) in such a way that D1, D2,D3, and D4 contained 0, 10, 15 and 20 % SDPM, respectively. D1 contained no SDPM and served as control. Droppings used were collected from a deep litter conventional laying house, sun dried and were mixed with the rations. They were analysed for dry matter, crude protein, ash, ether extract and calcium (Table 2).

Table 1 Composition and analysis of experimental diets (g/kg).

Ingredients	Diets			
	D1	D2	D3	D4
Sorghum	574	534	524	440
Wheat bran	150	140	130	140
Seesame cake	120	90	80	90
Ground nut cake	100	90	70	84
Oyster shell	20	20	20	20
Dried Alfalfa	5	5	5	5
Vitamin mineral supplement	1	1	1	1
SDPM	0	100	150	200
Calculated analysis				
ME (MJ/Kg)	12.51	11.55	11.07	10.3
CP%	21.07	19.51	19.51	20.08
Lysine %	0.5	0.4	0.4	0.4
Methionine & cystine %	0.7	0.6	0.6	0.5
CF%	7	8	8.7	9.4

The experiment involved two commercial layer breeds i. e Hissex white (B1) and Hissex Brown (B2). One hundred day old chicks from each breed were divided into four groups of 25 chicks each. The resulting eight groups were housed in conventional brooders (4.5 x 2.8 x 2.5 Meters) on wood shaving litter.

Table 2 Determined composition of SDPM (g/kg)

Dry matter	929.5
Crude protein	204.9
Ash	252.7
Crude fibre	173.8
Ether extractives	19.2
Calcium	38.0

Before the start of the experimental period the birds were placed on a four- week pre- experimental period during which they were offered the control diet D1. The experimental period enabled the chicks to get accustomed to the experimental environment. Starting day - one on the fifth week the breed groups were allocated at random to the treatments and continued for a 13 - week feeding period. Feed and water were freely available. Intake of food, live weight and mortalities were recorded. Statistical analysis was performed by determining group means and the standard error of the mean with mathematical difference determined by employing student "t" test (Snedecor and Cochran, 1967).

RESULTS AND Discussion

Values for growth rate, food and energy intake and mortality rate are shown in Table 3. s

Table 3. Mean body weights, food consumption and mortality rate of the birds to 13 th week of age (n=25, Mean \pm S.E.)

		D1	D2	D3	D4
Initial body weight(g)	B1	94 \pm 4.44 ^a	91 \pm 4.73 ^a	98.4 \pm 7.3 ^a	95 \pm 3.91 ^a
	B2	105 \pm 4.84 ^b	113 \pm 2.92 ^b	108 \pm 2.75 ^b	101 \pm 4.72 ^b
Final body weight (g)	B1	532 \pm 14.8 ^a	415 \pm 16.22 ^b	378 \pm 17.15 ^c	327 \pm 17.30 ^d
	B2	720 \pm 14.18 ^a	488 \pm 14.12 ^b	425 \pm 13.75 ^c	438 \pm 16.25 ^d
Total food intake (kg)	B1	3.428	3.444	3.536	3.580
	B2	3.518	3.608	3.676	3.712
Total ME intake (MJ)	B1	42.88	39.78	39.14	36.87
	B2	44.01	41.67	40.69	38.23
Mortality %	B1	0	0	4	4
	B2	0	0	4	0

A total of two birds from B1 and one bird from "B2 died during the experimental period. This suggests that the disease hazard of feeding sundried poultry waste is reasonably low. It was observed that the inclusion of SDPM significantly depressed the mean body weights of both breeds compared with the control diet. On the other hand body weight was significantly lower with D 3 and D4 than D2. These results are in agreement with those of Beily et al. (1972) and, Ogunmodede and . rninge (1978) in showing that the inclusion of 50 grams or more poultry waste /Kg resulted in a reduction in the weight and food utilization of the chicken. However, these results contradicted the findings of (Lee and Blair, 1972, 1973. Biely and Stapleton, 1916 and Bhargava and O. Neill 1975) who showed that broilers can be grown satisfactorily with diets containing up to 100 g processed poultry wastes /Kg. Q _ The results also showed that _Hissex Browns were significantly heavier and their 'food consumption was higher than Hissex Whites. It is interesting to note that voluntary food, consumption of both breeds was increased linearly with the increase of inclusion rate of SDPM, while ME intake decreased . This might suggest that the decrease in body weight was due to lower energy intake due to lower energy density with manure inclusion. - ' The objective of the experiment was to obtain information concerning possible utilization of the poultry manure by growing birds in the Sudan. Accordingly data reported herein demonstrated that 10%, or higher rates of SDPM adversely affect the growth rate of both breeds. Further work is needed to examine the inclusion of poultry waste at constant energy concentration.

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