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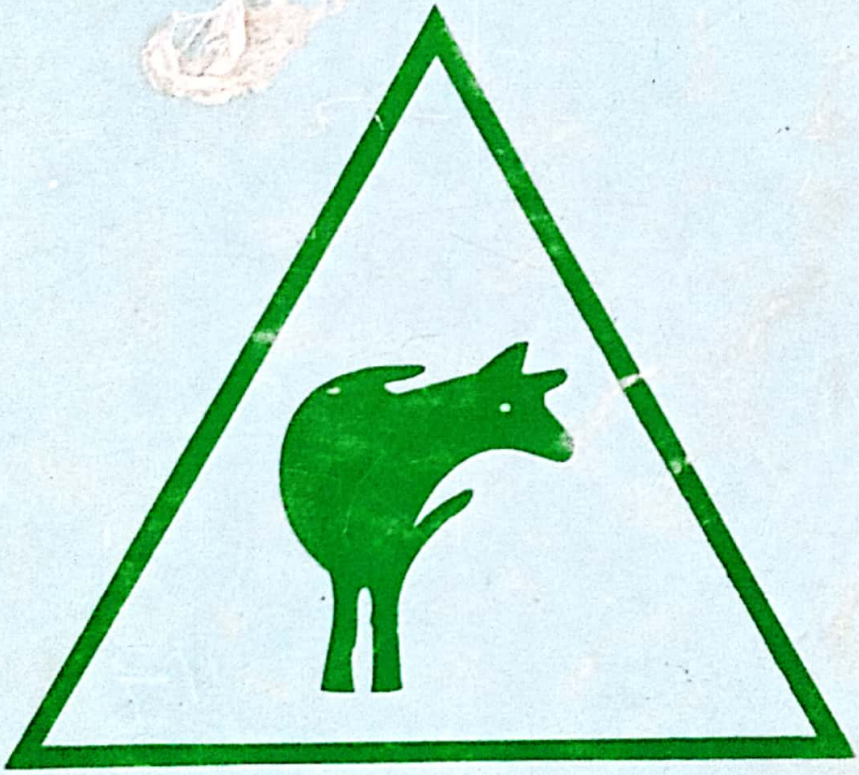
SUSTAINABILITY OF THE NIGERIAN LIVESTOCK INDUSTRY IN 2000AD



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MRS. KEMI AKANDE

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MRS KEMI AKANDE

CONTENTS

Performance of broilers subjected to varying regiments of nutrient restriction

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Introduction

The ability of animals to compensate in growth during realimentation following a period of under nutrition has been demonstrated in poultry (Plavnik and Hurwitz, 1991). Some researchers have also reported improved feed conversion during realimentation by broilers subjected to early nutrient restriction (Plavnik and Hurwitz 1985).

In recent years, there has been increased interest in studying compensatory growth in broilers. It has been described as a means of enhancing weight gain or improving the utilization of ingested food.

Materials and Methods

A total of 126 Ross broiler day old chicks were raised in an electrically heated battery brooder. All birds were fed *ad-libitum* to 7 days of age on the control starter diet, diet 1 (Table 1). The chicks were randomly alloted to one of six dietary treatments, each replicated thrice. Birds in the control, treatment 1, were fed diet 1 *ad-libitum* throughout the starter phase. Also during the starter phase, birds in treatments 2 to 6 were fed a low energy (ME 2,800Kcal/Kg), low protein (18%) diet, diet 2 (Table 2), for 16 days in varying regiments, all starting at 7 days of age, alternated by feeding the standard starter diet, diet 1.

In treatment 2, birds received diet 2 for 16 days followed by diet 1 to 35 days of age. In treatment 3, birds were fed diet 2 for 8 days, then diet 1 for another 8 days, then diet 2 for a further 8 days followed by diet 1. to 35 days of age. Birds in treatment 4 received diets 2, 1 and 2 for 8, 4 and 8 days respectively then diet 1 to 35 days of age. For birds in treatment 5, diet 2 and 1 were alternated severy 4 days such that birds had 16 days of diet 2 while birds in treatment 6, were fed diet 2, 1 and 2 for 4, 2 and 4 days respectively, such that birds had 16 days of diet 2. All birds were then offered a standard finisher diet, diet 3 (Table 1) from day 35 to the end of the experiment. Feed intake and body weight of birds were measured on weekly basis. Feed: gain ratio and body weight gain were also determined. Mortality was recorded as it occurred. The data collected were analysed using one way analysis of variance.

Results and Discussion

Table 2 shows the effect of varying regiments of nutrient restriction on the overall performance of broilers. There was no significant difference in the daily feed intake ($P>0.05$) with the nutrient restricted birds (treatments 2 to 6) consuming slightly more feed than the control birds (treatment 1). Leeson *et al.* (1991) reported that birds offered a diluted diet attempted to maintain their nutrient intake by consuming more feed. Dietary treatments had no effect on daily weight gain ($P>0.05$). However, the restricted birds had greater daily weight gain than their control counterparts. Feed: gain ratio were better in birds subjected to nutrient restriction. The birds in treatment 4 had a feed: gain ratio of 2.77 as compared to that of the control birds with 3.03, although this observation was not statistically significant ($P>0.05$). This observation is similar to the findings of Yu *et al.* (1990) who found no significant difference in overall feed efficiency between restricted and full fed broilers. Likewise, mortality rate was also not significant during the experimental period ($P>0.05$).

Conclusion

Varying the regiments of early nutrient restriction did not affect the weight of birds at market age likewise performance parameters like feed: gain ratio, daily weight gain, daily feed intake and mortality rate were not significantly affected. Hence, a mild form of nutrient restriction can be initiated at an early stage broilers without detrimental effects.

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Table 1: Percentage composition of the experimental diets

	Starter %		Finisher %
Ingredients	**Diet 1**	**Diet 2**	**Diet 3**
Maize	42.03	42.00	60.00
Soyabean meal	29.81	15.47	17.47
Brewers dried grain	10.00	16.22	6.27
Maize milling waste	8.00	12.45	10.45
Blood meal	3.03	3.00	2.94
Palm Oil	3.58	3.44	-
Bone meal	2.69	2.95	1.94
Cyster shell	0.26	0.15	0.33
Salt	0.25	0.25	0.25
Mineral/Vitamin Premix*	0.25	0.25	0.25
DL-methionine	0.10	0.10	0.10
Grit	-	3.72	-
Total	100	100	100
Calculated analysis			
Crude protein	23.0	18.4	18.3
ME (Kcal/kg)	3,081.2	2,800	3,024
Chemical analysis			
Moisture %	5.87	4.96	6.86
Dry matter %	94.13	95.04	93.14
Crude Protein %	22.51	17.49	17.30
Crude fat	5.3	4.8	1.7
Crude fibre %	3.85	4.75	4.42

*Supply per kg of diet = Vitamin A (8000IU), Vitamin D_3 (1,200IU); Vitamin E (3IU) Vitamin K_3 – KSTAB (2mg); Vitamin, B_2 – riboflavin (3mg); Vitamin B_3 – Nicotinic acid (10mg); Vitamin B_5- Pantothenic acid (150mg); Manganese (Mn) (80mg), zinc (Zn) 50mg); Copper (cu) (2mg), Iodine (I), (1.2mg), Cobalt (0.2mg). Selenium (Se) 0.1mg).

Table 2: Effect of varying regiments of early nutrient restriction on performance of broilers.

Treatment	Daily feed intake (g/day)	Daily weight gain (g/day)	Feed gain ratio	Mortality %
1	77.41	25.55	3.03	-
2	78.84	28.46	2.78	-
3	79.36	26.84	2.98	4.76
4	79.66	28.82	2.77	-
5	79.29	28.20	2.83	9.53
6	82.82	27.57	3.03	-
Significance	NS	NS	NS	NS
SEM	±6.2	±33.0	±0.05	±1.26

NS = Not significant (P>0.05)
SEM = Standard error of the mean