SHORT COMMUNICATION

EFFECT OF WET FEED ON COCKEREL CHICKEN PERFORMANCE

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ABSTRACT

An experiment was conducted with 66 day-old Hyperco cockerels. Cassava (*Manihot esculenta*) peels of mixed varieties were used for this study which lasted for 8 weeks. The peels were harvested at between 9-10 months of age from the cassava plantation of the Institute of Agricultural Research and Training (I.A.R. &T), Moor Plantation, Ibadan. The chicks were randomly allotted to the two dietary treatments A (dry mash) and B (wet, "moist" mash). Each treatment consisted of 3 replicates. The mean daily feed intake, water consumption, body weight gain and feed conversion efficiency values showed significant differences (P<0.05) between treatments. Considering the ease in producing wet ("moist") feeds, their use in cockerel nutrition offers tremendous commercial benefits if suitable equipment are developed for mixing and delivering them to the birds.

Keywords: Dry mash, Wet mash, Growth Performance, Cockerel chicks.

INTRODUCTION

Cassava (*Manihot esculenta*) peel meal (CPM) is a low-energy by – product of cassava processing. Up to one million tonnes per annum is available in Nigeria (Tewe, 1986). If properly processed and supplemented with a good source of the sulphur – containing amino acids, particularly lysine and methionine, protein, minerals and vitamins, these peels can be utilized as good sources of energy in poultry nutrition. Research has shown that the energy and fibre requirements of poultry can be adequately met through the use of processed CPM without adverse effects on the performance of the birds (Osei and Duodu, 1988; Aina, 1990; Ogbonna, 1991). However, despite the economic use of these peels as a replacement for cereals as a source of energy in poultry nutrition it has been observed (Oke, 1978; Ogbonna, 1991) that CPM is dusty and fluffy and, therefore, likely to cause respiratory disorder to the birds.

In Nigeria, poultry diets are normally fed as dry mash. Wet ("moist") mash-feeding involves the addition of water to dry poultry mash before feeding. Wetting the mash by mixing with twice the weight of water to give a porridge-like consistency increased feed intake, body weight gain and feed conversion efficiency (Yalda & Forbes, 1955). Published data on the use of processed CPM as a wet mash in poultry nutrition are not readily available.

This study was, therefore, designed to investigate the effect of wet ("moist") CPM – based poultry mash on the performance of crockerel chicks.

MATERIALS AND METHODS

Sixty six day-old Hyperco cockerels were used for this study which lasted for 8 weeks. The cassava peels used were obtained from the I.A.R.&T cassava processing center. They were of mixed varieties and harvested at 9-10 months of age. They were sun-dried on clean cemented floors for 4 days to a moisture level of 15-18%, after which they were ground in a hammer mill, packed in polythene bags and stored at room temperature. Composite

TABLE I: COMPOSITION OF EXPERIMENTAL DIET

Component	%
Cassava Peel Meal	45.0
Wheat Offals	18.0
Maize offals	5.0
Groundnut cake	14.45
Soyabean cake	10.0
Fish meal	3.0
Bone meal	2.0
Vit-Min-Premix*	1.0
Cyster shell	1.0
Salt	0.20
Lysine	0.10
Calculated Analysis:	
Crude Protein (%)	18.77
ME (Kcal/g)	2.63
Crude Fibre	5.68

*A vitamin trace mineral mix manufactured by Pfizer Feed Company, Lagos, for starting chickens to supply to 1kg feed the following: Vit A (I.U) 10,000; Vit D (I.U) 20,000, Vit E (I.U) 2.5; Vit K (mg) 20; riboflaving (mg) 4.2 pantothenic acid (mg) 5.0; nicotinic acid (mg) 20.0; Chlorine (mg) 300.0; Folic acid (mg) 0.5; Methionine (mg) 0.225; Mn (mg) 56.0; Io (mg) 1.0; Fe (mg) 20.0; Cu (mg) 10.0; Zn (mg) 50; Co (mg) 1.25.

TABLE 2: PERFORMANCE CHARACTERTISTICS OF COCKEREL CHICKENS

Criteria	A	B	SEM
Mean Daily Feed Intake: (DM Basis g/bird)	63.67^b	72.23^a	3.03
Mean Daily Water Intake (ml/bird)	91.93^a	75.75^b	5.72
Mean Daily Weight Gain (g/bird)	9.71^b	11.41^a	0.60
Feed Efficiency	0.20^b	0.21^a	0.004

ab = Means on the same row with different superscripts differ significantly ($P<0.05$)
SEM = Standard Error of Means

samples were taken for proximate analysis (AOAC, 1980) and the remainder was used to formulate the experimental diet (Table 1). The level of hydrocyanic acid (HCN) contents of the processed CPM was determined by the methods of Cooke (1979).

The chicks were fed the commercial dry chick starter mash for 7 days, after which they were weighed individually and then randomly allotted to the 2 dietary treatments A (dry mash) and B (wet, "moist" mash). The wet, "moist" mash was obtained by daily mixing

the air-dry mash with twice the weight of water before feeding. Each treatment consisted of 3 replicates with 11 chicks making up a replicate. Feed and water were supplied *ad libitum* to the chicks. Feed intake, water consumption and weight gains were recorded on a weekly basis from which the mean daily records were calculated.
The data collected were subjected to 't' – test.

RESULTS AND DISCUSSION

The proximate chemical composition of the experimental diet and the sun-dried CPM (%DM) were: crude protein 21.46 and 5.1, crude fibre 10.69 and 16.7, Nitrogen-free extractives 17.30 and 67.5, gross energy (Kcal/g) 2.68 and 3.21, hydrocyanic acid (mg/kg) 2.12 and 99.5, dry matter 94.54 and 86.20, respectively. The results of the performance of the chicks (Table 2) (indicate that significant differences ($P<0.05$) existed between the treatments. Treatment A had a lower mean daily feed intake value (63.67g/bird) on dry matter basis than treatment B (72.23g/bird). A higher mean value (11.4g/bird) for daily body weight gain was recorded on treatment B than on A (9.71g/bird).

Treatment A chicks recorded a higher ($P<0.05$) mean value (93.93ml/bird) for daily water intake than the treatment B group (75.75ml/bird). The chicks on treatment B had a better ($P<0.05$) feed conversion ratio (0.21) than those on treatment A (0.20).

Results in the present study indicate that wet ("moist") mash significantly ($P<0.05$) improved DM intake. This observation supports the finding of other workers. Yalda and Forbes (1995) evaluating the effect of enzyme and cornflour addition on the performance and digestion of dry and wet foods by broiler chickens observed that DM intake increased with wet feeding. Yalda *et al.* (1995) working on broiler growth and efficiency with wet food under semi-commercial conditions found that providing conventional poultry feeds mixed with 1.6 to 2.0 times their weight of water resulted in significantly ($P<0.05$) lower intakes of dry feed compared with the wet feed treatments throughout the whole of the experimental period. Kasch and Forbes (1995) studying the effect of wet food on growing broiler chickens mixed with 1.5 to 2.0 times the weight of water significantly ($P<0.05$) improved body weight gain per unit of feed. McCracken *et al.* (1994) observed that DM intake, body weight gain and gain to feed ratio were markedly reduced for the mash diets compared with the pelleted diets. Also, McCracken *et al.* (1995a and 1995b) observed that pelleting significantly ($P<0.05$) increased DM intake with a slight increase in feed refusals (spillages) in the mash-fed diets particularly at the higher inclusion of CPM. Ogbonna *et al.* (1996) observed that feeding mash compared with pellets significantly $P< 0.001$) reduced feed intake, body weight gain ($P<0.001$) and feed to gain ratio ($P<0.001$), thus supporting the observation of other workers. Petterson et *al.* (1991) reported that pelleting increased weight gains for broiler chickens receiving un-supplemented diet by 30%. Nir *et al.* (1994) related the effects of pelleting on feed intake and body weight gain to the degree of pelleting, stressing that feed utilization is improved by pelleting, independent of the amount consumed.
Yalda and Forbes (1995) and Yalda *et al.* (1975) observed that wet mash resulted in improved efficiency of feed conversion. This is because the chickens spent less time feeding on the wet, "moist" feed and so expended less energy than on the air-dry mash (Savory, 1974).

These observations support the findings in the present study. The addition of water to the air dry mash before feeding in the present study, reduced the dustiness and fluffiness of the air-dry mash which made it "pellet-like" with the resultant higher ($P<0.05$) DM intake (72.23g/bird) body-weight gain (11.41g/bird) and a more efficient feed conversion efficiency (0.21) than the birds on the air-dry mash.

CONCLUSION

The use of wet, "moist" mash offers considerable commercial benefit in developing countries if suitable equipment are developed for mixing and delivering it to the birds. The beneficial effect of mixing offers tremendous incentive for the use of this method in poultry feed preparation. Wet "moist" feeding has no adverse effect on cockerel chick performance.

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