

## THE EFFECT OF SUBSTITUTING SUN-DRIED, CAGED POULTRY MANURE FOR MAIZE IN GROWING PIG DIETS.

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### SUMMARY

Four (4) groups of 14 Landrace x Large White pigs (about 9 kg) were fed diets containing 0, 5, 10 and 15% of sun-dried, ground, caged poultry manure in an experiment lasting 90 days. There were no significant ( $P > 0.05$ ) differences among the groups in all the traits investigated except for mean daily weight gain ( $P < 0.05$ ). The diets had no adverse effect on the health of the animals. It is concluded that growing Landrace x Large White pigs could be raised satisfactorily with a diet containing up to 15% sun-dried, caged poultry manure without adverse effect on growth performance and carcass components.

### INTRODUCTION

Maize is the major source of energy in the diets of pigs in Malawi, but because supplies are now becoming both costly and scarce due to human demand, attempts are being made to replace some of it in the diets of pigs (Ayode and Makumbura, 1984). The study reported here is an attempt to assess the effect of replacing some of the maize in the diets of pigs with sun-dried, ground, caged poultry manure on the growth performance and carcass components.

### MATERIALS AND METHODS

Fourteen (14) Landrace x Large White pigs weighing initially about 8.8 kg. were randomly distributed into four (4) groups. Four maize based diets with or without sun-dried, ground, caged poultry manure were compounded (Table 1). The pigs were housed in the same pen. Feeding and management procedures were similar to those of Ayode and Makumbura (1984). The animals were weighed and treated for parasites at the beginning of the experiment, and thereafter weighed weekly before morning feeding. The experiment lasted 90 days.

At the end of the experiment, the animals were starved for 24 hours and weighed directly before slaughter. Data obtained were analysed by both the analysis of variance and the Duncan's multiple range test.

### RESULTS AND DISCUSSION

#### Chemical analysis

The sun-dried, ground, caged poultry manure used in this study contained 36.9% crude protein ( $N \times 6.25$ ) and 10.83 MJ/kg gross energy. These values are within the range reported for caged poultry manure by Pearce (1979). The crude protein and gross energy contents of the diets used (Table 1) in this study were comparable to the recommended values for growing pigs weighing 8 - 40 kg (Bellis, 1978).

#### Growth performance

The results of the growth performance and carcass components of growing pigs fed diets with or without sun-dried caged poultry manure are presented in Table 2.

There were no significant ( $P > 0.05$ ) difference among the diets for initial weight, final weight and feed intake per kg. body weight gain. However, the pigs fed diets containing 5 and 15% poultry manure consumed (18 and 4% respectively) less feed per kg body weight gain compared to those fed control diet; while those fed diet

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al (1971). Although there was no significant ( $P>0.05$ ) differences among the groups in mean final body weight, pigs fed diets containing poultry manure tended to be heavier than those on the control diet except for those on diet containing 10% poultry manure. This disagrees with the findings of Sibalic, Kunk and Varnju (1978) who reported that pigs fed diets containing poultry manure had significantly reduced mean final weight compared to those on the control diet. This could probably be a factor of the components of the diets used in the trials.

The inclusion of poultry manure at 5% level in the diet significantly ( $P<0.05$ ) increased mean daily weight gain by 18 and 31%, respectively compared to that of the control and 10% poultry manure animals. However, pigs fed diet containing 10% poultry manure had a lowered ( $P>0.05$ ) growth rate than those on the control diet (Table 2). This disagrees with the findings on Babatunde *et al.* (1980) who reported that poultry manure fed in weaner pigs' diet at 5 and 10% levels had no significant effect on gains.

#### Carcass characteristics

There were no significant ( $P>0.05$ ) differences between the treatments for all the carcass traits measured. However, the values were greater for pigs fed diets containing poultry manure than those on the control diet (Table 2). This supports the findings of Babatunde *et al.* (1980) who reported that the whole carcass and weights of organs in general were not significantly affected by the inclusion of poultry manure in the diets of growing pigs.

Throughout the experimental period, there were no clinical signs of disorder or of pathological changes in organs observed in the pigs fed diets containing poultry manure. This confirms the suggestion (Perez-Aleman *et al.*, 1971) that the inclusion of poultry manure in the diets of pigs had no detrimental effects on the health of the animals.

The results suggest that poultry manure can be used up to 15% in the diets of pigs without adversely affecting the growth performance and carcass characteristics of the animals.

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#### REFERENCES

- Ayoade, J.A. and T.P.E. Makhambera (1984) Alternatives to maize in pigs diets. 1. Replacing maize with bean pods meal in the diets of growing fattening pigs in the tropics. *Trop. Anim. Prod.* 9:200 - 202.
- Babatunde, G.M., B.L. Fetuga, J.O. Odeunmi and O.O. Oduye (1980) Effects of air dried poultry manure on performance, organ weight and haematological measurements of weaner pigs reared in the tropics. *Nutrition Abstracts and Reviews - Series B*, 50:284.
- Bellis, D.S. (1978) Practical pig production in Rhodesia. Rhodesia Agricultural Journal, Technical handbook No.1, p. 19.
- Lee, P.K. and Y.K. Yang (1978) Study of the optimum ratio of chicken manure fermentative feed in the diet of growing fattenings. *Nutrition Abstracts and Reviews - Series B*, 50:284 (No. 2960).
- Pearce, G.R. (1979). Quality aspects of livestock wastes in relation to their utilization. *Agricultural Wastes* 1:223.
- Perez-Aleman, S., D.C. Dempster, P.R. English and J.H., Topps (1971) A note on dried poultry manure in the diet of growing pigs. *Anim. Prod.* 12:361 - 364.
- Sibalic, I. V. Kunk and E. Varnju (1978) Poultry droppings in feeds for pigs. *Nutrition Abstracts and Reviews - Series B*, 48: 430.

Table 1: Composition of pig diet containing sun-dried, ground, caged poultry manure

	Level of Poultry Manure inclusion			
	0	5%	10%	15%
Components of diets (g/100 g)				
Maize meal	64	59	54	49
Maize bran	10	10	10	10
Groundnut cake	25	25	25	25
Poultry Manure	-	5	10	15
Salt	1	1	1	1
Chemical Composition (g/100 gDM)				
Dry matter	86.6	87.6	87.8	88.3
Crude protein (N x 6.25)	25.4	27.0	29.2	29.5
Crude fibre	3.5	5.1	7.4	8.0
Gross energy (MJ/kgDM)	16.5	17.8	16.2	15.7

Table 2: Growth performance and carcass components of pigs fed different levels of sun-dried, caged poultry manure

	Level of Poultry Manure inclusion				SEX
	0%	5%	10%	15%	
Initial live weight (kg)	8.50	8.63	8.50	9.50	0.36
Final live weight (kg)	35.33	41.50	33.13	40.00	1.09
Daily gain (kg)	0.33a	0.39b	0.27a	0.33a	0.01
Feed intake/kg gain	4.82	3.97	4.86	4.63	0.23
Hot carcass weight (kg)	17.90	19.56	19.95	24.80	1.11
Chilled carcass weight (kg)	17.47	19.15	19.65	24.47	1.11
Dressing percentage	50.67	46.67	59.53	62.07	1.82
Dressed out value	0.49	0.46	0.59	0.46	0.02

a, b values within the same row with different letters differ significantly. ( $P < 0.05$ ).

containing 10% poultry manure consumed about the same amount of feed per kg. body weight gain as those on the control diet. These are consistent with the observations (Lee and Yang, 1978) that pigs fed a diet containing 10% poultry manure consumed more feed per kg. body weight gain than

those fed diet containing 15% poultry manure. The actual feed consumption of the pigs on the four diets did not differ significantly, hence the inclusion of poultry manure in the diets therefore did not appear to inhibit appetite. This supports the findings of Ferrer-Alexan et